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Dear Jim,

A recent *Galaxy* Forum piece by Fred Pohl showed how a set of problems can be made to solve each other. I think I've found another of those snake-balls that will proceed to untangle themselves once we've taken the first steps—and since my letter on tuna fishing and dolphins elicited such an intense response, I thought you might like to bring this matter to the attention of *Galaxy*'s readership as well.

The sperm whale is the largest of the toothed whales; it reaches a maximum length of 60 feet, and is the only cetacean (indeed, the only living animal) with a throat large enough to admit a man. It is also the source of ambergris. [Also, it is not impossible that the sperm whale is as intelligent as homo sapiens. Ed.] Unless we do something, the species will be extinct within ten years.

The sperm whale is in trouble because of its spermaceti organ, a rather mysterious thing in its head that carries about a ton of whale oil. No one knows what it does for the whale—but we find it quite valuable; the US could use 50 million pounds of it per year, or 25 thousand whales' worth.

Of course we no longer buy sperm oil. The Marine Mammals Protection Act quite rightly forbids importation of all whale-derived products. Good as far as it goes, but not enough to save the whales; Japanese and Soviet whalers go right on killing, and there's a ready market for every available drop of sperm oil.

That's problem one, then: saving the sperm whale from extinction.

Problem two: severe unemployment in our Southwestern deserts.

Dual solution: those same Southwestern deserts, Indian Reservation land, mostly, can be made to produce 200 pounds of sperm oil per-acre per-year.

You see, there's this scruffy-looking plant called the jojoba (pronounced ho-HO-ba) that grows wild in the Sonora and southwards, and the seeds of this shrub turn out to be composed of about 50% of an oil nearly identical to that of the sperm whale—certainly near enough so for industrial uses.

A recent study by the National Research Council shows how planting 400 acres in jojoba each year for the next five years will ultimately provide an annual yield of a half million pounds of sperm oil indefinitely. The initial cultivation and refining will need Federal subsidies—but the major costs will be salaries for people at present unemployed—who will then become taxpayers.

So. A viable industry in a high-unemployment area, and sufficiency in sperm oil. So far so good; but I recommend we go much further.

Why not plant a *lot* of jojoba? The cost of subsidizing the cultivation of several thousand acres of the stuff can't be large compared to the millions of acres of tobacco for which we pay subsidies. Why not grow enough jojoba to sell the oil cheap on the world market; so cheap that there's no profit in killing sperm whales.

The benefits—alleviating unemployment, sufficiency in sperm oil, and saving a species from extinction—seem well worth the cost. Normally I do not recommend government subsidies; in this case I'll swallow my theoretical objections. I've written my Congressman about it. Care to join me?

Jerry Pournelle

*Tear out (or copy) this page and send it, and your letter, to your Congressman. Address it to the Hon. (Name), The Capitol, Wash., D.C.*

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*A love story.*

W '75

# *Evening Song,*

# *Night Dancer*

**Christopher  
Irwin**

TIEN WALKED OVER to the edge of the plateau. The grass felt cool and damp under her feet, and the orange light of the late sun glowed warm on her body. It was one of those evenings that made her want to stretch her arms and dance.

The shelter she had found for the night was good. It looked like the remains of an old overseer house, one of the many plastic-and-concrete skeletons that dotted the countryside. No doubt it had once been the site of solemn conferences, important gatherings, strange miracles like fires that burned inside

glass bubbles like tiny stars—things that her mother and the minstrels used to tell her about when she was a child. She looked around at the crumbling walls. Someone had obviously been there before her; most of the plastic had been stripped off and much of the better stone carried away. At her feet she saw faint traces of deer tracks; other animals had used this crumbling edifice as a shelter.

Suddenly a squirrel appeared on one of the pieces of stone that jutted above the weeds. Tien looked at it, watched the creature's dark inquisitive eyes, its nervous, jumpy motions. She tried to extend herself to the animal, but she picked up no thoughts—just a vague feeling of fear and hunger. The squirrel was obviously an ur-animal, not one of the newer ones bred by the Overseers to renew the world after the Age of Famine and the Great Plague. Having satisfied himself that Tien was not a meat-eater, the squirrel began to ignore her and poked around for food. As it leaped to the ground, one of its feet grazed a protuberance

on an ancient metal box attached to one of the ruined walls.

"GREETINGS TO ANY WHO MAY COME UPON THIS, THE HOUSE OF OR."

Tien looked about, terrified.

"LET IT BE KNOWN THAT IN THIS YEAR TWO AFTER THE GREAT . . . THE GREAT . . . THE GREAT . . ."

The squirrel scampered off into the bush. Tien looked all around her, but could see no one. The voice disappeared as mysteriously as it came. Once again there was only the ancient silence of the evening, the distant cries of birds, the clicking and whirring of insects.

Tien backed away. A few yards from the rubble she began to run. The long grass on the hillside whipped around her ankles, thistles scratched her leg, but she kept on running and didn't pause to look back.

She ran on, breathing hard, until she reached the deep shadows of a cedar grove, an arm of the Great Forest. Hidden in the speckled gloom beneath countless leaves and towering branches, she sat on a rock and looked around. Her lungs hurt and her feet stung from tiny cuts, but she felt safe here. She couldn't always trust that intuition, however, so she decided to make sure. She closed her eyes and opened her mind to any sensation, any shadow of a feeling. No, she sensed no violence here. Only peace.

"When life is no longer surprising to you," her grandmother used to say, "then you are half-dead." But voices out of nowhere? That was a little more than surprising. However, her grandmother *had* been wise—the only person she had ever known who could make sense of the funny little markings in the old books of the Overseers. Tien rubbed her ankle. She was beginning to feel better already.

It was then that she heard the music. At least, it sounded like music—very clear and delicate, like the sound of glass wind chimes on a summer night.

First voices out of the air, now music, she said to herself.

The sound seemed to come from beyond a hedge by an oak tree. She approached the hedge cautiously, sniffing the air, all senses sharply tuned to any trace of blood or malice.

No malice. Just that peculiar shimmering music, shifting, changing color like a dragonfly's wing. She looked through a cleft in the leaves.

It was a psio-hippus playing a harmonium. Instantly the memory of Tien's old tribe flickered in her head. The campfires . . . the music . . . she *knew* she had heard that kind of music somewhere before. She hesitated to go into the clearing. On the one hand psio-hippi were supposed to be very gentle animals; the human-like brains the Overseers had bred into them

made them intelligent and inquisitive—an ideal combination of strength and mental ability. On the other hand, this particular one might be a strange mutant, a renegade. Of course, whatever he was, he might have some food.

She decided to take a chance, and parted the branches to step forward.

The psio-hippus heard the snap of twigs and looked around.

Before him stood a stunning young woman with shaggy hair and full breasts, her legs long and sleek. He smiled.

"Long life to you," he greeted.

"To you too," she replied politely.

"What's your name?" he asked, setting aside the harmonium.

"Tien," she said. "Yours?"

"Twofour Nine," he said.

"Too-fore-nine?" she repeated. "That's a strange name."

"That's what I've always been called; I'm sorry if you don't like it."

"No," she added, "I like it; I've just never heard it before."

"Tien—that's Jinese, isn't it?"

"Yes," she said. "I think it means 'field'."

"That's a beautiful dialect," he said. "I learned it from a tribe that used to live down by Neverending River."

"Really?" she smiled. "My ancestors were from that area."

"Tell me, Tien," Twofour continued, "what's a young creature like you doing out here alone?"

"I was going to bed down up on the plateau, near the ruins," she said, "but a voice came out of nowhere. I was so frightened I ran. I don't know how long I ran. I ended up here, where I heard your music."

Twofour nodded; his short mane shook gracefully. "I know the place," he said. "There's a local spirit that lives there; I think he calls himself 'Or'. Many people are afraid to go there, but I've never heard of anything happening. I believe that this spirit must be a harmless one. Although I know several people who claim to have heard him speak, I myself have never heard a thing there."

Tien began to relax. Apparently there was nothing to worry about; the voice was harmless and Twofour seemed gentle and protective.

"How about some angel food?" he offered, extending an arm. Twofour's strange combination of hoofs and opposing digits surprised her, although she didn't find it unattractive.

"Go on," he said. "I gathered them just this morning. I found a whole bunch growing together in the field down there."

She took three of the small mushrooms from his hand, inspected their markings, and then popped them into her mouth.

"You haven't answered my question," Twofour said. "You still haven't told me what you're doing

out here alone. Did you get lost from your tribe?"

"I was separated from my tribe a long time ago," she explained. "At first I tried to find them, but it was hard; they kept moving all the time. Then I found I could do pretty well on my own."

Twofour looked at her carefully. "I don't know," he mused. "You don't look like the kind of person who could do that; the world's a rugged place. Full of some pretty ugly things. For example, how do you know I'm not some crazed mutant who was planning to tear you apart and eat you?"

"I can tell," she said. "I don't know how, but I can."

He shrugged his massive shoulders, and returned to playing the harmonium. Tien watched his fingers do a graceful dance on the levers of the instrument, filling the air with chime-like tones, diamond-notes against a velvet background, blue-green, amber melodies. She felt a current of joy well up deep inside her spine, waves of it spreading through her body.

"You must be a minstrel," she sighed. "I've never heard music that beautiful, not even in my grandmother's tribe, and they could do amazing things. How do you live? Do you play for food?"

He answered her as he played.

"I guess I *am* what you might call a minstrel; I wander a lot. Don't like to stay in one place too long."

"Are you a robber?"

"No," he said, "I've never robbed a soul in my life. Never had to. I forage for food—berries, wild vegetables mostly. Now and then I join a tribe for a while and play for them, help them carry wood, build wagons. I have a strong back."

She looked at him. He had the back of a horse, strong glossy shoulders, sleek neck. His head was a man's head, though; she looked into his dark eyes. They were sensitive, almost shy. "Much like a man," she thought. "A good man."

Her mind began to blossom like a red lily in the gardens of New-D. Twofour continued to play. He played soft, eerie music that reminded her of dark ruins and moss, of the sound of animals in the night—the lowly ur-animals and the confused half-animals that bayed and howled under the full moon.

Twofour looked at her.

She was breathtakingly beautiful. In addition, her arms and back looked strong. He felt his nostrils dilating.

Tien breathed deeply. Her mind was wide and transparent; it seemed to have no limit. She could sense life stirring all around her: insects carrying particles of food, following their monotonous tracks through towering blades of grass; squirrels nestling together in the dank hollows of trees; wild dogs bounding over the wet grass of pastures, yelping at the evening smells. Through

the trees, the sky glowed deep gold.

Twofour couldn't take his eyes off Tien. Honey-tongue, he thought. Soft, bare-skinned descendant of a race of hunters . . . antique crown of all creatures. . . .

She looked at him with surprise. A smile spread across her face as she instinctively touched her thighs. "You would like to be my mate?"

Twofour laughed self-consciously. "How did you know?" he asked.

"I sensed it," she said. "My body grew warm, as though I were sitting by a campfire."

"I'll take good care of you," he assured her. "You needn't worry."

"I know," she said. "I can sense that too."

He came over to her, she put her arms around him.

"We might even be able to have children," he said softly.

His voice seemed to come from deep within a cavern. It was low and distant, and seemed to echo. "The angelfood," she said to herself.

In a second that seemed to last hours, she had a vision. She saw a sun, rising over a plowed field. Wolves and wild horses paced around the edge of the furrowed land, sniffing the air, confused by the lines of turf that crossed their old pasture in a straight pattern they had never seen before—disturbing, alien lines. Where once they had run among wildflowers and brambles, they now padded gingerly over

neatly up-turned earth. As the red orb rose above the field, green shoots pushed through the soil, and in seconds, climbed smoothly toward the sun, blossoming and bearing fruit. Out of that glossy fruit burst creatures like Twofour and herself. They left the field and went out into the other valleys of the world, where they built snow-white towers out of marble and gardens more lush than the earth had ever seen—even more lush than the fabled dome-gardens of New-D. And all creatures came to those gardens—men and animals and half-animals—and all walked together, cultivated vegetables, and played in the crystal pools. . . .

Twofour stroked her cheek.

She opened her eyes.

Then, a rustle of leaves. Snapping twigs.

"Hell, would you look at that?" a man said.

"I see it but I don't believe it," said the other.

"One of them crazy half-breeds."

"Thought Alpha team had cleared them away years ago."

"Damn Foundation men. Long dead and we're still cleaning up after them." The one wiped spittle off his lips with a leather glove. Twofour recognized their white metallic clothing—surviving humans from the neighboring valley.

"It wasn't the Foundation," the one said, "Just Chan and them Biolab people. You know—

Operation Newlife and all that, right after the plague.

"You think we should kill them? Or take them back to the settlement?"

The first man raised a metal cylinder with a grid of fine wires at the end. "Ain't no room for them at the settlement—not enough food to go around as it is."

"But that one looks human," the other protested. "The girl."

The first man grinned, eyeing her from the ground up. "Yeah, she does look human. But she ain't. Probably descended from one of those gypsies that ran away from the first settlement. Look at her; she's wild. Who knows how messed-up her genes are."

"Yeah," the other agreed. "She might not *be* half-animal, but she sure looks half animal."

"There's no doubt about what we have to do," the first man continued. "It's us or them. Of course, we can have a little fun with the girl first." He raised his metal cylinder higher and pointed it at Twofour.

Then suddenly their eyes went blank. They dropped their strange cylinders and stood for a moment as though in a stupor. Suddenly, they ripped off their clothes and ran through the trees laughing and grunting.

Twofour, stunned, looked at Tien.

"What happened?" he asked.

"It's something my mind can do

without my willing it," she replied. "I felt it. It happens when somebody threatens me. Anyway, they're happier now and we're safe."

Twofour smiled. He laughed at his earlier impression that Tien was a helpless fawn of a woman. Together they would begin a fine race, he thought.

"I guess we should leave here," he said. "In spite of your talent, I don't like to take chances with the Degenerates. They're too violent—too dangerous."

"Where could we go?" Tien asked.

He thought for a minute.

They could run wild, of course, as he was used to doing. But that wouldn't be right for her. Although he hated the idea of responsibilities, he did think that his life could stand some order—within reason.

"We must join a tribe," he announced. "That's the only answer. I could play and sing for them, carry lumber, and you could wear gold bracelets and dance."

"That would be nice," she agreed. "I think I know where Blue Bear tribe is," she continued. "Last time I saw them they had set up camp about two miles over South Ridge. We could get there before tomorrow's dawn if we leave now."

"Faster than that—hop on."

She climbed upon his back, hugging his sides with her long legs.

Together they rode off into the warm night. ★



**Jeffrey Carver**

# **ALIEN PERSUASION**

---

*He had fled from intimacy with  
his own kind—how then could  
he join minds with this  
hairless biped?!*

---

## PART ONE - *Sedora*

**G**EV CARLYLE HAD LITTLE success in concealing his exasperation. "Cephean," he said, "you do know how to fly a ship—I mean, you flew your own, right?"

"Hyiss-yiss!" insisted the cynthian. "Hoff khorss." Cephean was large as a tiger and black as coal dust. His eyes were molten copper, flecked with gold, and he was plump and furry, like an enormous persian cat.

Carlyle was trying to explain to him about starship flying, rigger-style, but nothing ever seemed to sink in. It was not, Carlyle thought, something which ought to need explaining. Not at this juncture, anyway. "Follow my lead, is all I want you to do," he said. "You can sense my guidance of the ship. Just back me up." He looked at the cynthian questioningly (and felt a rush of *impatience*, a sense of

*preoccupation*—Cephean's).

The cynthian looped his tail behind his triangular ears, and his eyes blinked and flickered in the subdued light of the bridge. "Hi khann ff-hollow," he hissed.

Carlyle cleared his throat dubiously. Could he? The explanations all seemed to go over his head, though of course the cynthian was not really listening to the words themselves. "Okay," he said. "Let's try it again. This time work with me, not against me." *Or we're never going to get there*, he added silently. *Sedora* was a long way from any starport.

Cephean dutifully padded over to the makeshift stern-rigger station, followed by his two riffmar, the walking ferns that accompanied him everywhere. Cephean sat and Carlyle tilted the back of the partially dismantled seat until it rested against the cynthian's spine. Cephean tensed for a moment, then relaxed.

Carlyle hastened to join him, reclining in the pilot-rigger seat until the neural-foam pad touched his own backbone. He felt an instant of numbness, as his eyesight darkened, and then his senses sprang like electric fire, out of his body and into the ship's net. Flux-space curled about him in a majestic panorama of colorfully layered smoke. Stars, nebulae and the currents of the interstellar seas melded in whorled and flowing atmospheres. Here and there, stars were visible as nuclei of

distant vortices; most were mere flecks of carbon dust adrift in luminous space. Below *Sedora*'s glittery net, a channeled intersection of two planes marked the Reld Current, an even-flowing, deeply submerged channel in the multi-dimensional ocean of flux-space. The Reld was Carlyle's immediate objective.

The Reld itself would be easily navigable, but at its end it emptied into a different sort of current—the Hurricane Flume, a violent meeting and surging and tangling of currents, a wholly perilous place that *Sedora* would reach in a half-dozen days. From within the Flume streamed the upwelling currents to Cunnilus Banks, and in those Banks lay Carlyle's destination—and the nearest havens. If they could reach Cunnilus Banks, they would be home-free.

But to get there they had to navigate the Flume—and that was why Carlyle was scared. *Sedora* was a four-rigger starfreighter—which until the accident had been manned by five crew(wo)men. Now Carlyle was alone—except for Cephean.

Singlehandedly, Carlyle could barely manage the ship and the Flume was going to hit him like a cyclone. But with his shipwrecked cynthian aboard, he liked to think that there would be two of them to do the flying. There had better be—or they were both doomed.

*You there?* he asked.

*Hyiss.*

He released the stabilizers, reached his steely, spidery, sensory arms into the streamers of flux-space, and coaxed the ship downward. Behind him, he hoped, Cephean was comprehending and helping.

**C**ONSIDER STARSHIP-RIGGING for a moment. A demanding profession, requiring from a human rather particular and peculiar aptitudes. For the rigger, starflight was akin to free-wheeling fantasy, and flux-space therefore to the mistily-mapped realm of the waking dream. Riggers were dreamers, but of a special sort—not idle ones, but dreamers who could reach *through* a vision, to gain a fingerhold in another, and sometimes more useful, reality. The net was his harness, allowing the ship to drift with him, like a backpack, while he used the ebbs and flows of flux-space itself for transport. It was a realm unconcerned with the laws or distances of normal-space, and it was a fine way to travel.

The dreaming, though—that was the tricky part.

The net itself was a glittery spangle of ghost neurons flung into flux-space like the exploded tentacles of a Man-o-war. Interfaced through organic neural foam and amplified by the flux-pile, it was the rigger's skin against space, his wings and fins in the turbulent air/sea among the stars. The rigger guided the ship by intuition, by his

own individual imaging powers.

Intuition: that was the second tricky part, especially among a crew. No two riggers viewed flux-space identically; teamwork demanded a gestalt, a deep intermixing of visions, of perceptions, of selves. Functioning smoothly together, several riggers could sail a ship easily among the stars; at odds within the net, at best they would bob helplessly, at worst they would tear a ship to pieces.

The teamwork had always been the toughest part for Carlyle. Such openness, such nakedness. And now—with an alien stranger? The dreampool might well be the only way. He shuddered at the thought.

AS THE SHIP ENTERED the Reld, Carlyle cursed the cynthian's clumsy efforts. His anger rang in echoes round the net and vanished in the noise of space. Cephean homm-humm'd to himself somewhere sternward, keeping his thoughts private and consistently responding late to Carlyle's initiatives. The ship bucked and plunged like an angry whale.

*Gently, Cephean! Do you see the river?*

*Whass? Whass?*

A "river," yes, that was an adequate image. The lanes of the Reld congealed, darkened into molasses, flattened beneath a glittery sky and flowed swirling between two misty riverbanks; *Sedora* settled her hull into the waters and

moved quickly downstream through the night. The net shimmered beneath the hull, beneath the dark surface of the river. The Flume was invisible, not even a distant mutter; but beyond it in the distance a dim streamer rose to meet Cunnilus Banks, a faint cloud of particles in the night.

The ship lurched again, as Cephean clumsily bumped the stern askew. *Cephean; follow!*

*Fjhollow-hing, Caharleel!*

*No rapport, he thought, straining to guide the ship. What did Janofer used to say? That a crew needn't understand one another, or even be friends . . . that the crux was congruence, simple congruence of vision. And Skan—that without unity none of the rest was worth a mote in the Kryst Nebula.* That was why they had sent him to crew *Sedora*, had sent him kindly, firmly, hoping he might learn here what he couldn't from them.

This Cephean, though, was more like Legroeder, so alone with his thoughts—even in the net, where privacy tended to dissolve. Except Legroeder always worked in harmony, despite his aloneness, and could be either leader or follower; Cephean it seemed, could be neither.

Carlyle kept up the struggle for a time—jockeying, trimming the ship, compensating for Cephean's mistakes. How did he ever fly his own ship? Carlyle muttered. Finally he called; *Cephean, pull out of the net,*

which the cynthian did, humming and grumbling, and Carlyle infused the entire net with his strength and bucked the ship into line where it belonged. Then he put it on stabilizers and withdrew himself . . . and gazed with tired eyes about the bridge, before retiring to the commons, and then to his cabin.

To regain the feel of a human body, to eat, to sleep a while, to find and lecture the cynthian—and to try again, once more.

## REMEMBERING:

After the accident—trying to summon the faces of his dead crewmates. He had rigged with them for only seven days and now could not recall their names. He had been lucky, or he would have died with them. Lucky?

Other names came to him, though: Janofer, Legroeder, and Skan—the names clicked through his head like the chatter of a rad counter, rhythmically, Janofer Legroeder and Skan.

The faces came later. Legroeder: dark little man, pilot-rigger, lover of dream-gestalt plays, but often shut away in his cabin, a place madly adorned with mystical-sequenced pearl-gazers. Janofer: gentle, beautiful keel-lifter, fond of stories and music even in the web, briefly a lover and always a friend. Skan: com-rigger and hard-balanced thinker, the one to believe in when decisions were to be made, but fearsome when his balance crum-

bled and he plummeted into one of his deep, black depressions.

Why couldn't they be here now in this battered vessel?

*Lady Brillig*—glittering domed beauty of a ship, light and comfortable, and responsive as a kite! Who was the fourth, now, in her rig? Who, *Lady Brillig*?

Eventually, though, such thoughts had to be put by. With great trepidation he took his place alone, for the first time, in *Sedora*'s net. There was no choice but to fly if he could; the vulnerable and delicate transmission gear had been fried along with his crewmates. He was almost astonished when he sank his fingers into the stuff of space and the ship moved at his bidding.

*Sedora* was ponderous, and flew as if laden with water. He could only work her for short, deadening shifts; his stamina deteriorated rapidly even so. He thought of the Flume ahead, considered and discarded other courses, thought of the Flume again, and knew he hadn't a chance in a thousand.

Therefore hope, when it appeared, was strange.

The signal had seemed a part of the windrush, part of the starsong of the net. But like a warbling bird it would not be ignored, and finally he decided that just *perhaps* he was hearing a distress beacon; and with tightly suppressed excitement he wheeled *Sedora* into the clouds to find the source. The search nearly drained him—ten hours of puffing

through crazy blue skies with golden veils and spun hair arching across the stars like a yellow-brick road.

At last he found it; a flattened raisin of a spacecraft, drifting abeam of *Sedora* in the queer near-distance of flux-space. He grappled it and took it spiraling up with him through layered images of space-times, into spinning, velvet darknesses . . . until at last the stars exploded in bright pricks of light—and he looked out through the clearplex port into normalspace.

The ship was squat, strange; alien.

He suited up and floated across to it. From space, *Sedora* was cold, a gun-grey cetacean, linked to him only by a snaking lifeline. His soles touched the other ship; he wondered who he might find, and whether perhaps the strangeness was only beginning.

**F**Ollowing a poor night's sleep, Carlyle entered Cephean's quarters. The cynthian hardly noticed as he sat idly batting the two giggling riffmar into floating somersaults. Carlyle cleared his throat. The ferns squealed and scuttled away behind Cephean, their oversized hands flailing excitedly. How strange it must be, Carlyle thought, to be so utterly dependent—both for Cephean and the riffmar. Cephean was master, but the riffmar had the hands and the prehensile branches. How helpless

would the cynthian be without them?

"Cephean, let's talk."

The cynthian gazed at him, ears forward. (He sensed *mild interest*.) "Hyiss?"

"Cephean," he said, and hesitated—"this is sort of ridiculous, isn't it? Here we are lucky enough to be able to help each other, and now we can't seem to make it work. We both know how to fly, and there should be no reason why we can't do it." He eyed the cynthian and asked almost pleadingly, "don't you want to reach port, don't you want to go home?"

"Hyiss—yiss," Cephean replied, his whiskers curling and springing straight again. "Hi ffly wiss hyou," he hissed, his velvety face split in an apparent grin.

"Yeh. What went wrong, last time? Why didn't you work with me?"

Cephean's breath hissed over his teeth, as he seemed to consider Carlyle's statement. Behind him, the riffmar rustled and *sssk'd* quietly as they buried their feet in the nutrient bed. Cephean touched a forepaw to his nose and said, "Hi ss-ry. Hiss d-hifficulss." (An impression of *shame* flickered across Carlyle's mind.) "Hyou ffly, Caharleel." (The image was followed by a strange, dark longing, unidentifiable and then gone altogether.)

Carlyle grimaced, wishing that he did not have to play guessing

games. Cephean, apparently reading his thoughts, stirred nervously.

"All right. We'll try it again, in a little while. If we don't do better this time, we'll have to try something else." He did not mention the dreampool, but it loomed large in his thoughts; the cynthian started, and looked away.

*Odomilk.* An image of the strange pods drifted eerily through Carlyle's mind. The cynthian was issuing commands; the riffmar scrambled to lift two *odomilk* pods from the cache, and set them deliberately in front of Cephean. The cynthian cracked one carefully in his jaws, and sucked at the yellowish liquid that oozed out. He looked at Carlyle with upturned eyes, making plain his discomfort at Carlyle's presence.

Carlyle left him, and went to the commons. He toyed with a flo-globe, sipped a beermalt, flashed a sparkle-pattern in ringlets about the room: stoic . . . erotic . . . pastoral . . . he stared at the wall.

THEIR NEXT SESSION in the net began not much differently. Cephean hummed away with his own thoughts, while Carlyle pleaded, pried, cajoled—and the ship sideslipped and trembled in the smooth-flowing Reld. *Cephean, open up—turn your thoughts outward, into the net.* The cynthian hummed and muttered, and whistled an unintelligible reply. The ship swayed in the clouds, whipped.

*Follow, dammit!*

*F-hollow-hing.*

Carlyle flew a few more practice turns, and then he flew straight, resting. Janofer came to him quietly, unbidden, with a question: *Can you go it alone, Gev? You may have to try.* Don't ask me that, Janofer. Gentle Janofer, silver-haired keel-girl, you know I can't go it alone, but you always ask. Why must you? *A wrong fit in the net warps it like a gravity abscess in a calm stream . . . dangerous. You are sometimes like that, Gev, for all that we love you—dangerous. Do you think I don't know?* All right—I'm a lousy rigger.

Janofer, face darkening: *That's not what I mean, Gev. You're a fine rigger. But . . .*

Skan, interjecting flatly, not unsympathetically: *You're a lousy matcher, Gev, that's all. You'd be fine in a one-rigger . . . except you like company too much. Too bad you don't have a bit of Legroeder in you.*

Skan. Always right, never tactful, damn you. Stay with me a while, Jan, will you?

Sad, already distant gaze: *Can't, Gev—I can't. I'm gone, now. Later, perhaps, if you really need me. Perhaps then, for a while.* And with that she was gone and so was Skan.

Then, perhaps, eh? Janofer so kind, so courteous—you hurt even when you are here.

Carlyle brought his attention back to the ship, which was drifting again. The ship resisted his efforts

to bring her true; no assistance from Cephean. More strength was needed, though; he was taxing himself grievously as he flexed his spidery ghost-neuron arms in the current. And then a curious thing happened. Legroeder appeared in his thoughts, wordlessly, and entered the net at the keel station. Smiling enigmatically at Carlyle, the former crewmate lifted the ship, helped steady the axis along the blue haze of the mainflow, and pointed the nose where it belonged, at the distant glitter of Cunnilus Banks. The maneuver was done smoothly, almost effortlessly.

All right, Carlyle thought in surprise. Why not? The power, he knew, was his own, focused through a wistful memory. But if he flew better through a memory, what harm?

*Sedora* sailed placidly for a time, and Carlyle almost forgot about Cephean, silent at the stern. Then a turbulent stretch loomed ahead, an orange tributary streaming in from the left, setting the calm blue haze of the mainflow aswirl with dangerous eddies. Legroeder? Yes, still there. The ship shivered into the current, and Carlyle with Legroeder's help stretched out steely arms and labored like an oarsman to keep it under control. They needed more strength still; they had to aim deeper.

Janofer and Skan reappeared as quickly as the thought—and all three backed him in the net as he

hooked his nails into the fabric of space and wheeled the ship slowly to find its new direction. Silently and without fanfare, Carlyle found himself part of a perfect gestalt, and as one the four riggers brought *Sedora* into a down-welling and then leveled her again in a smoother layer of current.

The fantasy was a white lie. He had never managed gestalt with the three, hard as he had tried. If he had he would still be on *Lady Brillig*. But the image was perfect in his mind—it was the gestalt for which he had yearned, and *Sedora* flew with the grace of an eagle. The image multiplied in scope and *Sedora* winged silently over sprawling tufted clouds which glittered whitely about him. Carlyle forgot his loneliness, realizing with sudden dizziness how terribly lonely he had been. Janofer's music lilted calmly through the net, and Skan's control lay steady and sure over the gestalt. Even Legroeder, pretending to ignore them all, smiled with unspoken affection.

Time, in the gestalt, passed unnoticed.

But the image was as tiring as it was exhilarating. Carlyle, bearing the load of four-riggers in one, slowly became aware of the strain he was enduring—and then it was too late. His strength failed like rapidly souring wine—his senses dimmed and flattened, and the ship balked in his disintegrating rein.

Suddenly he could not remember

his friends' faces or their voices. The ship began to tumble; he wanted to sleep, to collapse. How long had he been flying?

*Caharleel*, Cephean whispered urgently.

*Cephean!* My god. *Can you help, can you hold the keel steady?* The fine spiderweb of the net was coming apart, was untangling in the clouds.

*Hyiss.*

Cephean's presence grew quickly in the net, and Carlyle felt first relief, then panic. Could the cynthian handle the ship? He felt a blur of annoyance—and distracted bewilderment at . . . what? . . . at the hutmans who had appeared and taken things over for a while, and then vanished. And . . . eagerness? Before Carlyle could think about it in his dullness, the sensations disappeared. Cephean had hastily reclosed the lid on his feelings, and hissed faintly now as he wielded the ship over Carlyle's failing control.

He took the ship deeper. *Sedora* dived steeply, terrifyingly. The cloud-image vanished for Carlyle, and suddenly he was deep underwater, and sinking rapidly. *No, Cephean! What are you doing? Level off, bring it up!* He opposed the cynthian desperately, and in the conflict the net strained and sparked brightly, heatedly, then began to break, tear, shred. The ship tumbled deeper and broke completely through the Reld, so that the Current was only a shimmering ocean

surface above them as they fell toward the abyss. The space here was dark as night, perpetually dark, far deeper than Carlyle had ever dared venture. Cephean was trying to destroy them and Carlyle seemed powerless to resist.

Like a stricken diver screaming for air, Carlyle reacted in blind panic, badly, in the only way he knew. He triggered the fusors: they flared searingly hot, and the ship groaned and rose upward roaring on the throttled torches, a fuming trail burning in their wake. He had failed to numb the sensory field astern, so the heat of the jets crawled along his spine with clear, glazing, flashing agony. Cephean's scream was a silent shriek of pain; centered in the stern rig, the cynthian was taking the brunt of the sun-fury, but Carlyle was too sticken to speak or to help. Fragments of cynthian thought flew like shrapnel: *Ruhinned . . . ss-/how . . . de-h-mise!* The rest was lost—too fleeting—but Carlyle heard a gasp of astonishment as Cephean jerked out of the net and found relief.

The fusors were dreadfully inefficient—but they worked, and they sustained an image of directed movement, so that Carlyle gradually found himself regaining a semblance of control. The surface of the Reld came toward him as the ship rose, then fogged, and sputtered in the jet-flare. When at last the fusors shut down the ship's keel drifted once again in the mainflow

of the Reld came toward him as the held by a tangled remnant of the control web. Carlyle set the stabilizers and withdrew, barely conscious, from the net.

He sensed the cynthian nearby, jittery and numb and bewildered—but he was too exhausted to look. His veins flowed with lead, and before he could rise from the seat he felt his eyelids close, and he sank helplessly into unconsciousness.

**I**MAGES OF THE QUARM fluttered naggingly, incessantly. *A strange communion, cynthian heads bowed in a circle, whiskers twitching—thoughts fleeing selves, joining /regrouping/intermixing like buffeting winds—shared dreams in strange places, in imaginary bodies. The images were flavored with distaste, with bile-sour anger towards others in the quarm, with resentment at being an unwilling participant. But was not the quarm a relief, an escape from identity, a boon to a weary, confined mind? Was it not natural? Why did Cephean so want to be alone?*

**C**ARLYLE AWOKE confused and dizzy. He focused with difficulty on his cabin walls as he tried to recover the recent past. Recollections filtered fuzzily into his brain; he had awakened—years ago, it seemed—exhausted on the bridge, and had stumbled to his cabin and bunk. He had slept—how long?—two shipdays. Jesus. Memories,

dreams—he had picked up more from Cephean than he had realized.

The flying—Lord, trying to fly as four-riggers-in-one! It might well have killed him.

Rousing himself, he went to the commons, ate ravenously. Afterwards he drew a mug of hermit ale, and sat—knowing that he should go look for Cephean.

Before he had done so, however, memory-faces rejoined him and held conference. Skan, *shaking his head*: “*No flow, Gev. You've got to bring that plump cat right into the rigging—wring him out, make him respond.*”

“*Thanks, Skan. Care to help?*”

Skan, *smiling now*: “*I have, Gev.*”

Janofer, *flowing and concerned*: “*Perhaps you should think of trying alone, Gev. Or if you must, use the dreampool.*”

The dreampool—frightening enough with another human; machine-assisted intimacy. Now, with an alien? “*Just like the old days? That's how you've always spoken to me.*”

“*I've tried, Gev—you know that. But always there was something that wouldn't connect between us.*”

“*How many times did you try. Twice? Three times?*”

“*Which nearly broke me. It wouldn't work, Gev—it just wouldn't.*”

“*Hm.*”

“*You are a beautiful friend, though.*”

"Thanks."

"You're coming up on the Flume, soon, Gev. Don't be thinking about us. We'll help all we can, but if you depend on us, you'll burn yourself out."

Skan: "The cat—you've got to get the cat working with you or you'll never make it."

"He acts suicidal."

Legroeder, from somewhere, looked up and nodded, but distractedly, as if his real thoughts were elsewhere. Janofer, whispering softly, drew close and brushed him with a kiss, a breath of moist wind touching him from afar, and then withdrew, her voice a fading note on the air. Carlyle stirred restlessly.

After a time he rose and left the commons, thinking to find Cephean and—what? Okay, time to act like a commander and start kicking ass. Right.

Cephean was not in his quarters. Carlyle stood in the starboard-main corridor under the humming brushed-bronze stabilizer arch, and—feeling slightly silly—considered where to look next. What might Cephean have been doing while he slept? Unsupervised, the cynthian might have gotten into almost anything.

The bridge was deserted. Likewise the commons and communications coop. Worried, Carlyle began a more systematic search—dreampool theater, engineering, utility storage, exercise room, lifecon-

trol, airlock, conversion room. He checked the fluxfield chamber without entering; the suits were all in place, and the monitors assured him that the pile shield had not been breached.

That left only the cargo hold. Carlyle was not sure what all *Sedora* carried but much of it was bound to be valuable. He went below and looked.

"Damn you, Cephean!" he breathed. Number three cargo port was ajar, and a tattered bit of something lay on the deck—a broken riffmar leaf. Carlyle stepped inside. The hold was gloomy, and webbed with crisscrossed anchoring strands, from which were suspended Lifecybe organic computor cores, each in a fried-egg shaped cradle with umbilical to a central support unit. Each was worth a fortune.

Cephean was on the far side of the hold, hunched over one of the cradles. Carlyle started that way—and was stopped in midstride, mesmerized by a flashing light which danced in a quick series of circles about the room—external stimulation for the cores. He shook his head, and hurried across the compartment.

Cephean looked up at him.

"What are you doing here?" he demanded, struggling to sound diplomatic; he looked down at the riffmar, who rustled quickly around behind Cephean. (He sensed *disconcertment, frustration*.)

The cynthian hissed noncommi-

tally, his whiskers curling. "Caharlel-hyor com-ffusors nohwork."

Carlyle looked at him narrowly. "Of course not. They'll work when they're installed in computor tanks. Right now they're just being kept alive for shipment."

"D-heds now," Cephean insisted.

Carlyle froze, eyeing the cynthian. What was that supposed to mean? He shoved past Cephean and looked into the cradle behind him. The neural tissue, visible under a clearplex dome, quivered faintly; it was dark and smoky, and a glance at the cradle monitor confirmed that the core was dead. He whirled. "Did you do this?" he said.

The cunthian's face twitched, unreadable. "Hi h-make missthake," he hissed.

"You what!" Carlyle shouted. "What did you try to do?" He glared, caught the cynthian's eye, held it insistently. "What did you do?" he repeated.

Cephean sputtered, and pawed his nose. He half-snarled an answer, incomprehensible. The riffmar lurched toward Carlyle, then retreated. Carlyle asked again, insisted. Cephean cast his gaze about anxiously and cried, "Hiss who-odens hansser h-me!" He hunched fearfully, mournfully, and shook his head.

Carlyle checked other nearby units, and found one more ruined. "Why are you wrecking my car-

go?" he demanded, almost shouting now. Cephean gave in, and sputtered finally that he had been trying to question the computor cores. He had thought that they were hiding something, information of some kind, about the ship.

Carlyle was incredulous. "Why didn't you ask me what you wanted to know? This is just a mass of nerve tissue—works when it's part of a unit. It's delicate! You can't pump it as if it were a ship's computer. What did you want to know, anyway?" He looked around disgustedly. The two cores were expensive losses—not that it would matter, if they failed to reach port. More appalling was Cephean's lack of good sense, or of understanding of the human systems aboard ship.

"Damn it!" he barked, making a decision. "We're going to get some things straight. Right now." The cynthian looked startled. (A jolt of *surprise, apprehension*, crossed Carlyle's mind.)

"I'm not going to like this any more than you," he said determinedly, "but I think at last we're going to understand one another." The riffmar squealed; he glared at them.

"Follow me."

Cephean followed him out of the hold, shaking and hissing.

## PART TWO—The Dreampool

THE DREAMPOOL THEATER was

lighted only by a deepsea gloom. The pool, circular and still, was enclosed by a smooth, padded ledge; the water radiated a sourceless, ocean-blue light. The depth of the water was visually indeterminable—the water appeared simply to merge with the inner wall, and only the glow could be seen in its depths. Good place to dive and never come up, Carlyle thought; he adjusted the lighting and the sensory responders.

"Whass?" Cephean queried suspiciously, circling about the pool and coming back to eye Carlyle nervously.

"Dreampool," Carlyle said. "Used by nigger-crews to help develop rapport. I didn't want to use it, because it was designed, really, for human minds—and frankly it can be pretty damn personal."

"Well, we're going to test it between a cynthian and a human."

Cephean's flickering eyes seemed to turn inward. His whiskers writhed; and the riffmar shuddered sympathetically. "H-no-o, no-o!" he hissed. He drew himself into a defensive crouch and glared at Carlyle stubbornly.

"You'd rather float around in space for the rest of eternity?" Carlyle asked sternly. "Well maybe you would for some reason, but how'd you like to drift forever having to look at me until you die? Eh? This ship goes no further until we've used the dreampool, or given it a good try."

Cephean shivered. "Damn it, no arguments," said Carlyle, wondering how far he dared assert himself.

His determination must have been plain, because the cynthian acquiesced, muttering. He explained the procedure, and they both seated themselves at the pool's edge, ninety degrees apart from one another. "Look straight into the water, now, and let your mind follow your eyes. Listen to my thoughts and do exactly as I do."

Gazing into the pool, Carlyle studied the luminous surface, and allowed his other thoughts and feelings to subside. The water was faintly perturbed beneath the surface, so that the light emanation wavered subtly; after a moment it was the variations rather than the light itself he watched—shimmerings in the cool bath of sapphire-emerald. The flickering of an open flame but without the warmth—it was alive, and it reached out to him and entered his eyes with the tranquilizing energy of an alert, probing mind . . .

**T**HE FIRST THOUGHTS were his own memories. The death of the *Sedora*'s crew—sudden, terrible, the cauterizing radiation of the Flux-space abscess flaring through the rig like a bursting aurora, the scramblings of communications, the clanging alarms that brought him running from a maintenance chore in the fluxfield chamber, only to find the smoking bodies of his

crewmates, dead at their stations. The shock, horror, revulsion.

Later, garbed still in a chamber suit, dragging the four bodies to the converter chute, struggling not to lose his grip on himself, not at least until he had done what he had to do. Afterwards he could let himself go to pieces, shudderingly relive the horror, wondering by what fortune he was alive. And then, later still, watching the healers slowly, slowly regenerate the neural foam in the rigger seats, so that he might try to fly.

Before disaster, though, was departure; unhappily boarding *Sedora* at Deusonport Field, with mixed and hurt feelings. He wanted to fly in *Lady Brillig*, not *Sedora*, but if they said that being helper-rigger on a slowship might improve him, then helper-rigger he would be. Deusonport Field, a bit cloudy, green hills and forest about the perimeter, should be a cheery sight on return. Relaxed, amidst the commerce of the Aeregian planets.

Earlier still, now, *Lady Brillig* out of Jarvis on Chaening's World: Legroeder and Skan as usual; and Janofer, never quite stationary—her moods changing like aircurrents, never merely buoyant or petulant or contemplative or depressed; always a mixture, and her attention rarely focusing long on any one of her friends, but ever shifting from one to another to somewhere beyond the ken of any. Why could he not have been closer to them?

And . . . earlier? . . . later? . . . the flight-shell of another space-craft: the battery of riffmar in turmoil, working to confused commands while he fought to control his fury and discover what was wrong. The riffmar were maddeningly inept, never mind that they only responded to his control. *Mindless plants!* he shrieked silently, but it was not a curse, only a statement of fact. Why had he come so far to get in trouble, why had he let Cormeph get to him like that? A riffmar, confused by his shaky control, stumbled close to him; he swatted it squarely with his left paw, flattening it. *Six more alive, by damn, and they'd better start flying.* But they wouldn't, not unless he himself determined what was stalling the craft, and instructed them. If only he knew more about these things!

*(Strange, to be flying without knowing. . . .)*

*Bring my syrup,* he ordered, and glared at the two riffmar scurrying to comply, wrestling between them a large stalk for him to chew. He took it moodily in his jaws, and sent the two off to tend the riffmar-bud cultures, and then to feed themselves. As they wriggled their twiglike feet into the nutrient beds, Cephean turned his thoughts elsewhere, and brooded on his plight.

He had left in a huff, before his time, taking a space shell from the docks without checking or preparing. Bad judgement, admittedly, but

who would have thought that a simple shell could malfunction? Starflight was so bloody easy—use riffmar to run the shell, nothing complicated, and let your mind guide the ship, like the interdreaming of the quarm, but with no broil-damn other minds cluttering up your thoughts. Lord-o, he had needed a break from Corneph's incessant nagging, never letting him rest a moment without conforming to the quarm—mix, mix, mingle, never leave a corner of anyone unexplored. Become a plant, become an alien, broil-dammit was he so strange, that he could not stand it?

Ooh, just to be free of them! Lord-o, that's why he had fled, but not to make it permanent.

*(Did they offend? Is that why you do not wish company?)*

*(Whass?)*

He was stalled, stalled. Why would the damn thing not fly! Seated in his sunken dias, he grilled the riffmar on their findings (though they had been unintended, so how could they find anything?), and he hurled abuse at their quivering forms, and finally leaped screaming, scattering them in fear. *Odomilk!* he shrieked, and sucked on the pods with a vengeance while the riffmar huddled in a corner.

Nothing like pungent odomilk—but still, he must attend to the riffmar. They could perform certain chores by rote, but hardly what he was now demanding—and certainly he had to be careful with the six

that were left. Perhaps there was a maintenance recorder.

Humming, he set them to locating the memory-cube and then obeying the cube's silent recitation. Hey-now, the thoughtflow amp seemed to work, so maybe the controls were just out of kilter. This was more like it—a pity he hadn't thought of the recorder sooner, but after all he was a forest-singer and not a craft-tech. Corneph—that sot-rotted nuisance would be laughing if he knew. His bloody arrogance could make anyone leave home. Corneph, with his stinking empathetic grin, diving like a fool into the quarm, dragging you off on a mindlark whether invited or not. Lord-o-lord, to be rid of him was worth even this!

A riffmar peeked shyly at him, awaiting recognition.

Useless plants! He recognized with a fast swat. Hah! Two with one blow!

But he needed those two to fly! He prodded them agitatedly, but it was no use, they were dead. He sprang to all fours in alarm, his whiskers curling and twisting. What had they come to tell him?

The four remaining riffmar huddled at the control tree, and he approached cautiously. What had they learned?

*Hsss.* They quivered, struggling to formulate a coordinated reply. *Hssshell ffly . . . h-nneed more uss.* One of them collapsed, from the strain, and the others bent and

picked it up and carried it to the nutrient bed. *Hssss.*

That was it, then; he was finished. He had caught the image, brief but sufficient—the controls had been upset by a passing storm; with the help of the memory cube, the problem had been corrected, and now all he needed were six riffmar to operate the controls. And all he had left were four.

Rage boiled slowly in his stomach. He could not fly with only four, and he could not speed the growth of the buds; he *could* switch on a distress beacon, but no one would hear it—he had flown purposely beyond cynthian space. He was finished, and he knew it. He was embarrassed beyond description.

A low wail emerged from his throat, and through a haze he saw the riffmar shrink from his anger. Damn them! Hissing, spitting, he leaped at the control tree, rebounded with a crash of breaking elements, and launched himself at the riffmar. Two fell to his flailing paws, but in his madness he lost all thought, and the other two were able to flee shrieking to safety behind the nutrient bed. He forgot them, and bounded back over his dias, skidded, and slammed broadside into the wall. Stunned, he staggered away and hurled himself yowling into the control tree again, where he smashed amidst splinters and tumbled, battered, to the deck.

Much later, on awakening, he



tore savagely into his stock of bramleaf, and gorged himself on odomilk. He ignored the riffmar, ignored the broken controls, ignored his shell's warbling distress call, and concentrated solely on glutting himself to his limit on bramleaf and odomilk—and not long afterward he sank groaning onto the dias, laid his head upon his tail, and slept.

*(My god, such violence! No discipline! It's no wonder you can't coordinate with me in the net.)*

*Ffsscrewhyou who kannoss kheef hyor mind h-where hiss be-hlongss. Ffsscrew, Caharleel.)*

Awakening, he hissed in pain, his stomach a hard knot of burning complaint. His fur was matted and disheveled; he wanted badly oh so badly to regurgitate, or failing that to die. He fumed in silent agony, his eyes watery and nearly blind, thoughts orbiting one another in meaningless jokes. Could he maybe work the little knobs himself, with his big, clumsy paws? Yeh. Ooh, to throw the fiercest tantrum in history! But he could hardly move for the cramps in his abdomen.

When his head cleared somewhat, he turned grimly to his final challenge: how to arrange for himself a classical demise. He looked balefully at the riffmar, *sssking* in the nutrient bed, and violence stirred once more in his blood.

No, he must spare them, for the moment. Had he grounds for demise? Dereliction in space was embarrassing, to be sure. Depressing,

frustrating, infuriating. But was it humiliation enough? He could not be certain. What he really needed, for a demise that would put even Corneph to shame, was to be seen a victim rather than merely stupid.

*(Demise? What. . . ?)*

Later, mulling and gnawing at his tail, he was startled by a CLUNGGG ringing through the shell. That buzzing outside—was there something out there? Fascinated, terrified, he listened. What, what! There were thumps, small quiet ones moving in a progression around the shell. Lord-o, lord-o, was space going crazy? He listened with his mind, and nearly spat with surprise. An alien walked on the outside of his shell. Rescue!

Frightened stormy panic flashed suddenly, and ebbed. Gathering his wits, he sent the two riffmar to ready the airlock to receive the alien. What better humiliation could possibly be asked?

Now, with assurance at last, he began to plan a truly graceful demise.

*Cephean, you mean you came aboard this ship, meaning from the start to—?*

*Fffssilly ssfhol! Hnow Hyou haff h-made h-me fsssay iss!*

*But I'm trying to help you get home again.*

*Ffssthupid! H-noss h-my home-ss.*

*You could find a way home all right. Is your humiliation the only reason you want to destroy this ship? Wouldn't you rather go back*

*to laugh at Corneph or something?*

*Cephean, lurching, almost crashing through the separation layer: No, no! Noss Corneph hin mi-mind!*

*Carlyle, wondering if he was the only blockhead around: Cephean—I didn't rescue you to embarrass you, or even just to save you. I needed help myself. There's no humiliation in offering help—and that's what I want you to do, offer me help.*

The separation layer shimmered like a curtain, and Cephean brought his face close, peering at Carlyle. *Whass h-about hyor frenss hyou halways haff?*

*Oh, them. Yes. They're different, I thought you knew—memory, imagination—sort of like your quarm, I guess.*

*Hyou heff no quarm! Scornfully. Or was that envy?*

*No. But we like to think we have something like it; though sometimes wishful thinking is as close as we come. Except for the dreampool. And that can be scary—but it helps us work better in the rig, afterwards, and that's why you're here.*

*H-wy hyor ffrens noss helf?*

*That's the whole point. That was all me in the net flying—and my crazy imagination. Maybe I could do it again, but it would never get me through the Flume.*

*Whass iss Flume?*

*Again? Here:*

The Flume. Breakup of the Reld Current, spawner of a dozen new ones. Riggers passing at peril—like ancient sonarmen—sounding the

depths carefully, guessing at reflection layers, scattering layers, deep transmission layers. Change was the only constant, and things could happen fast. A whirlpool luring a ship into its vortex; a waterspout lifting a ship and pinwheeling it to tumble lifeless back into the sea; white-water rapids smashing a ship and flinging the pieces to the heavens. Or—the Flume mastered and sailed.

*H-we kann noss!*

*Yes we can, dammit. Ready for a demonstration in cooperation?*

The cynthian sputtered in confusion. *Whass?*

The setting changed abruptly. They were suddenly both standing on a hillside meadow, facing each other under a beaming sun. The meadow lay part way upland in a range of rugged hills. Below and around it sprawled tufts and cushions of forest. *Whass!* Cephean was both astonished and indignant and his copper eyes flashed like buttons in his black velvet face. This, Carlyle perceived, was a bit too much like the tricks old Corneph used to pull. Well, too bad. *This is your world, isn't it Cephean?*

*Hyiss.* Suspiciously, almost angrily.

Carlyle nodded. The dreampool drew as much from Cephean as from him; what the cynthian didn't know was that neither of them was in control.

There was a sound of giggles, badly suppressed. Two riffmar

poked their heads out of the grass, and sat up hiccuping.

Another sound—a hissing chortle higher on the hill. Corneph was watching them delightedly; he looked like Cephean, only smaller, and with a single brown streak across his black, furry breast. (Carlyle sensed sudden *malevolence* from Cephean.)

Not far from Corneph, Janofer sat serenely watching; and presumably Skan and Legroeder were somewhere about.

*That's the whole cast, Cephean.* Carlyle turned about, scuffed his feet in the turf, breathed great lungfuls of air, and gazed at the almost tortuously green countryside. *Will you show me around?* he said to the cynthian.

Cephean spat and sputtered in perplexity, and finally pawed his nose and allowed, *Hyiss, ss-all ri-*ss. He led the way downhill, trotting on all fours with the riffmar at his heels. Carlyle followed him into the woods, lost him momentarily, and then found him again unconcernedly waiting for him beneath a stand of slender, smooth-trunked trees.

*Ssstopf.* He stopped. The cynthian sat impassively, his molten eyes wide. The riffmar became very still. A sound passed through the air like a flying shadow, a pure musical note. Or was it in his thoughts? Carlyle could not tell, even when the note was first repeated, and then followed by several others of differ-

ent pitch, and different timbre. Notes began to fall like rain, reedy mournful sounds, and crystal tinkling belltones, and a shower of melohorns, and a skyful of sounds for which he had no name. There seemed to be no melody. But as he listened another kind of pattern developed in his mind: visual, of colors, of blending, sagging clays, of red sands tumbling from cliffs; and the smell of fresh-cut grass and broken cedar. His vision blurred, and instead of Cephean he saw a community of cynthians working, directing riffmar, while the larger delmar were busy at construction.

A cacophony of silent thoughts and commands made him cringe and the vision blurred but he glimpsed a *quarm*, a circle of cynthians, their normal cacophony subdued to an intense mumble. Again: cynthians at study (investigating what?), their sparkling eyes gazing into oddly shaped crystals. Hum of probing thoughts. The vision broke.

The music-rain slowed, trickled wetly, and stopped. He looked at Cephean in amazement; the cynthian now sat beneath a cleverly woven bower of trees, looking utterly relaxed. Carlyle blinked. Had the trees themselves bent to Cephean's designs? The music had engaged him so, he had literally seen nothing happen. *You did that?* he whispered.

*Hyiss.*

The visions—had they been a de-

liberate distraction, or merely an undertone, background noise?

He never got the chance to ask. A boisterous scream shattered the forest stillness. He looked around, startled. An enormous flying beast coasted over the woods and descended, crashing through the trees, and landed on the forest floor nearby with a CRUMP. It was a *koryf*, a dragonlike creature from Garsoom's Haven. Carlyle had seen one once, and had been terrified—as he was now.

The beast screamed again, and spat acid saliva that fell smoking among the trees. The creature was hideous, crumpled and grey, and it stank, even from a distance.

*Whassss!* Cephean hissed shrilly.

Carlyle explained, and added quickly that the creature would quite likely try to kill them. *This one came from my memory*, he thought woefully.

The *koryf* beat its wings furiously, and lurched toward the two with a cry like a sigh of death. Carlyle back-pedaled further into the trees, but Cephean did not move. *SSTHOFF!* his mind shrieked at the approaching beast, seemingly convinced that if a *riffmar* would respond, so would a *koryf*.

The *koryf* lunged spitting and wailing at the much smaller cynthian. Cephean fled after Carlyle.

*You can't stand against it*, Carlyle said stupidly, as he huddled against a tree. Cephean just glared at him. The *riffmar* scrambled past

and did not stop.

Carlyle gestured frantically. *We can't outrun it, not far, and we can't fight it. We'll have to outwit it.*

*Sss-how?*

*It's stupid, do you understand that? It's telepathic, but it's stupid. The *koryf* was crashing through the trees towards them. His words spilled out in a jumble. We've got to distract it—it can only concentrate on one thing at a time. If we each try to hold its attention we can confuse it. Then—jesus, I don't know what then, but if we don't do that much it will kill us for sure.*

Somewhere, *Corneph* cackled a cynthian cackle.

*Hyou bross heem Caharleel!* Cephean protested angrily, not saying whether he meant *Corneph* or the *koryf*.

Carlyle shoved Cephean violently, and scrambled himself as the *koryf* smashed with beating wings through the last shielding trees. Urging Cephean on, Carlyle stumbled to gain some distance. He gasped and leaned heavily against a tree as Cephean, beside him, snarled at the beast and then turned to resume his complaint.

Carlyle was saved answering as *Janofe* interceded soundlessly from wherever she watched. *He had no choice, Cephean.* Carlyle looked up in amazement. *Gev can only get so much help from us, and no more. We are not so real as we seem. But you can help, Cephean, if only you*

will try. *Do what he says now—you must!* Her voice was soft as always but urgent. Bitterness and gratitude rose in his throat, in his nostrils at her compassionate and humiliating presence.

Cephean snorted, but looked off into space, thinking, pawing at his whiskers. Finally he ducked his head around to face Carlyle. *Whass-h-we d-hoo?*

The koryf screamed, as it deciphered their location and started smashing its way forward again. Trees began toppling terrifyingly, and gusts of foul wind filled the woods.

*You run to the right, I'll run left!* Carlyle shouted. *You've got to keep its attention, and I'll do the same, keep it confused. Now GO!*

The tree before them was suddenly unrooted in the koryf's jaws. Before it could drop the tree to attack, Carlyle and Cephean bolted in opposite directions. The koryf hesitated, and turned to follow Cephean, roaring. Carlyle began jumping and screaming, *STOP! STOP!*, but when the koryf gave no sign of listening he took a deep breath and charged after it. There were no stones on the ground, so as he approached the beast he scooped up clods of earth and hurled them at the koryf's head. He missed, but found a broken branch and threw that as the koryf snapped close to where Cephean crouched. The branch glanced from its forehead, and it swung about in rage, lifting

its wings like tree-bowers, and screamed at Carlyle. Carlyle turned and ran.

When he had gained a little distance, he looked back. The koryf had begun following him, but he could see Cephean in the distance, seemingly stalking the beast. The koryf crashed dangerously close, and he could smell its acrid breath, but he waited, ready to run, thinking, *come to me, come to me*. An image of raw, red meat came unbidden into his mind and he stiffened, thinking he was intercepting the koryf's thoughts, but the koryf stopped suddenly, and wavered. It twisted its head to look at Cephean, and when it did so, Carlyle filled his mind with the same image of raw meat. The koryf turned back, spitting, but did not attack. An image of a wounded, struggling animal appeared, and the koryf turned again toward the cynthian. Carlyle replied in kind.

After a minute of confusion, the koryf suddenly made up its mind, and it charged after Cephean. Carlyle ran after it, hurling dirt and branches, and screaming. He had to chase it some distance before it stopped and turned, and they could begin their game of confusion once more.

This time they held it longer. Carlyle called encouragement to Cephean as they toyed the beast back and forth. When the spell finally broke, the koryf turned on Carlyle and snapped so close he

could hear the teeth clack in his ear, and he ran and did not stop running until he was out of the trees and in the meadow.

Stupid! he realized immediately as the koryf broke out of the trees right behind him. But Cephean appeared at the edge of the woods and *screamed* a mental picture of bloody, gutted animal. When the koryf hesitated, Carlyle hurled a stone, and knocked it on the head. The koryf vacillated.

Carlyle thought of a snoring mouse, concentrated all his thoughts on the image of the tiny, sleepy animal. He felt the image reinforced, as Cephean took it up; and suddenly the koryf merely looked confused. Out of the cover of the trees, the beast was as frightening as before, but uglier and less mythical. Carlyle thought of sleep, of peace, of satiation. He imagined himself after glutinous eating, and that thought too was reinforced.

The koryf, after a while, folded its wings and settled down to watch the two from a more comfortable position. It began to look like a shriveled, big-jawed elephant minus trunk and ears. Lowering its weight to the ground, it seemed to decide that there was no point in making hasty decisions.

Two minutes later, it was snoring loudly and vulgarly, and Cephean was studying Carlyle with flickering, astonished eyes.

Janofer smiled from the edge of the forest. Corneph appeared also

and hissed grudgingly. That seemed to please Cephean.

Carlyle was not sure just what the cynthian was thinking. But if Cephean had believed Janofer, did any of the rest matter?

**C**ARLYLE LIFTED HIS EYES and looked across the dreampool with unutterable fatigue. His neck was cramped, his arms and legs were sodden, and he was drenched with sweat. He looked at Cephean, who was grumbling and stretching with far less than his usual energy.

Carlyle climbed down from the ledge. He nodded to the cynthian, but neither of them felt like speaking.

### PART THREE—The Flume

**T**HE LAST DAY before *Sedora* reached the end of the Reld, Carlyle suddenly found himself taking a liking to the riffmar; he whiled an hour playfully boxing with them, and later, as they were sunning themselves under a lamp in the nutrient box, he came around and squirted them with a water bottle. They giggled hoarsely, and seemed to enjoy it. Cephean said nothing about this, and Carlyle wondered whether it was really the riffmar he played with, or an amused cynthian. He could not be sure; he rather hoped it was the riffmar.

They practiced once more in the net, and Cephean was cooperative

but unenthusiastic. Carlyle did not press the issue. Fortunately, the Flume was coming upon them quickly, and the time for worry was over. They would either make it, or they would not.

Carlyle took a last draught of hermit ale, frothy and coolly refreshing, and then he summoned Cephean from a last pod of odomolk, and led him to the bridge. He could not guess at his crewmate's thoughts.

The net was flushed with a slight excess of power, a result of Carlyle's final retuning of the fluxpile. He flexed his spidery wings gently to burn off the extra energy.

Finally he took a last few moments to settle himself calmly and alertly in the net, and to glance about him. The Reld was running fast, and grumbling as it accelerated toward its end.

*Ready?* he asked. *Hyiss,* answered Cephean.

**T**HE CURRENT BECAME a powdery, tumbled ski slope, and they were speeding downhill into a snowy, evening mist. What lay below was obscured. He folded the net beneath him into skis, and they thundered pleasantly through the snow. He flexed and bounced through the banks; *Sedora* was heavy, but so far she was riding well.

There was no way of guessing when the vision might change or how. Was the cynthian viewing a similar scene? *Cephean, what do*

*you see? How does it feel?* Cephean homm-humm'd in reply, and Carlyle caught a stunning glimpse through his senses—a fleeting landscape, prismatic and crystalline, and dustily wet. And downhill speed, growing. Carlyle was reassured.

*H-you wanss chahange, Cahar-leel?* Cephean queried nervously..

*No, this is fine for now.* Cephean was uneasy, then, but seemed alert and ready to assist. Little more could be expected.

The speed picked up even more, and the snow was turning harder; the skis rumbled louder beneath him, and began to shimmy and skitter on the run. The light on the snowscape was fading into twilight, and he began to lose some of his confidence.

Without warning, he thumped into a mogul and was slammed violently into the air, his bones quivering from the impact, his breath sharp and scared. The ship's mass took him off balance and twisted him sideways and off keel as he fell—and it was Cephean who brought them down safely, his heavy tail swinging outboard to counterbalance Carlyle's torque. They landed hard, skidding and swaying, and swooped onward down the trail.

*Good work. Thanks.*  
*Yiss.*

The air began to mist, then, and the snow softened under the runners. The image was disintegrating; the snow wilderness was blurring into

fleeting, hazy clouds. And then the current dropped, shifted, and turbulence grabbed at them like vacuum.

They had been dumped into the Flume.

Carlyle pulled his arms and his breath taut, and fought not to become excited. The ship was plummeting uncontrolled, and he had no idea whether he should try to slow it or steer it or leave it alone. *Ride it easy until something develops*, he called, finding security in the sound of the command. Wind was rushing deafening at his ears.

*Whass haffenss?* he heard in an urgent, frightened whisper.

*I'm not sure.*

The turbulent winds were forming ahead into visions of glowing streamers; chaotic, thundering, furiously interclashing. Their downward fall sloped into forward motion again, and an ungodly racket shook the ship's frame until it groaned in the buffeting net. *Sedora* plunged toward the center of the fury—and something was changing.

*Another vision*, Carlyle shouted, startled by a new and thunderous roar in the net. A noise of crashing water threatened to shatter his ears. *Waterfall! We've got to ride this one, or it will break us apart!* he bellowed, not knowing if he was heard.

He dug his arms into the hurtling water, felt Cephean doing the same. The ship crashed thundering through foaming spray, dashed amid shining

boulders—and shot over the edge.

It dropped like a cannonball (skirting how many light years? Carlyle wondered ludicrously). *Ready to bring the stern about!* They would have to impact in the cataract basin nose-first, or the shock would demolish them; but they would have to come about under their own power or the wrenching turn would accomplish the same thing. He would have to lift the nose as Cephean kicked the stern . . .

*Sedora* slammed into the basin like an ungodly pile-driver, an exploding jack-hammer, and smashed Carlyle's thoughts and teeth and steel neural arms, and sent pinwheels of fire through shocking darkness.

Carlyle wrenched before blacking, and Cephean kicked, and the ship screamed through its skeleton and its skin but refused to yield to the torrential currents. Then it bent like a maddened porpoise, and rocketed shrieking out of the water-cyclone and coasted straight, shivering, intact.

Carlyle forced his eyes to see again and gaped in amazement that the madness had passed and the way ahead lay sparkling, clear—as smooth as a river.

*We cleared it!* he shouted.

*Hyiss yiss yiss! Where h-we gho?* the cynthian burbled, still frightened and delighted at finding himself alive, and open and generous

enough to let Carlyle see all of that.

*To the Banks, to Cunnilus Banks,  
you sonofabitching cat!* he yelled joyously at the cat-like being.

But all was not yet over. *Sedora* still scooted and danced and dashed, and Carlyle and Cephean were jerked from their delight to hold the ship on course, in its pathway among scattering and shifting currents that were the Flume breaking into its upwellings and downwellings and dying threads of energy. The effort was grueling, and the rig strained and stretched between the two; and once Carlyle shouted angrily and brutally at his alien companion, and once Cephean in furious backlash almost slewed the ship into a sulking dive. But neither could have managed alone, and Carlyle drew often on Cephean's support, and even relied on the cynthian's vision when his own grew blurry in weariness.

The currents tore at them and nagged them, but in the end they succeeded, and *Sedora* hurtled coasting out of the shifting winds, and Cunnilus Banks glittered before them like a starry, snowy hill—bright and welcoming after their journey.

Carlyle pointed *Sedora's* nose carefully, deciding on Garsoom's Haven. (Gammon's Annex, the original destination, was too far abeam, and what the hell, he could show Cephean a real live koryf.) Then he settled back in the net and relaxed, watching the powdery drift

of the stars and chatting a bit with the cynthian.

*Not a bad piece of flying, eh, Cephean?*

*H-you kidss h-me, whass, yiss, Caharleel? Why h-yor ffrens no helff? Hi needss broil-damn odomilk, iss whass hi needs.*

*Ho, you weasel, I think I'll teach you to drink ale. Maybe a spot of whiskey, no?*

*H-no, yach! H-you ffoison h-me, yiss?*

*Look at it this way, Cephean, I'll bet it's something Corneph never tried.*

*Ssru, fferhaffs, yiss.*

*It's settled, then. Just to show no hard feelings.*

*Yorgh. Hey whass? H-yor frenss h-again?*

Carlyle, hardly aware of the drift of his own thoughts, was as startled as the cynthian.

*Janofer, clear and beautiful in the net, was staring at the two with mock-beady eyes. What's this, Gev? You two are starting to sound like old friends; vicious.*

*Okay, okay.*

*Don't be embarrassed. It's nice.*

*Yeh. Enough's enough. Cephean, you ready for that ale? (Janofer withdrew back into his mind, grinning.)*

*H-you kray-ssee.*

Grinning himself, Carlyle pulled gently from the net and rubbed his eyes thoughtfully. The road ahead seemed clear, and he was ready whether Cephean was or not. ★

# MOON BALL

Patrick Henry Prentice



*Only on the Moon  
can you learn what  
'homesick' really means!*

"you'll know what all the excitement is about." Senator Steven Grange (D-III.) who steered the bill through the Upper House, put it more simply: "Betting on moonball will replace sex as the national pastime," he said.

The New York Times  
April 11, 1988

*By a vote of 208-127 the House today approved the so-called "Moonball Rider" attached to the National Lotteries Act (S.1225), a bill authorizing the construction of a domed stadium at Lunar Base Two (Copernicus). Construction is scheduled to begin in January, 1989, at a cost of \$8.2 billion.*

*Proponents of the measure have argued that once the facility is functioning, the costs will be recouped in the first year of operation alone. Opponents of the measure, while failing to come up with the votes necessary to defeat the bill in its entirety, nonetheless were able to delay a decision on the financing of the 128 ground stations stipulated in the bill before the Senate. Recent advances in satellite holography are credited with assuring the passage of the measure, which was defeated when first proposed in 1986.*

*Thus, what began as simple recreation for the first lunar construction crews, will become what one Congressional aide called "a significant source of revenue" in the future. "Once you've seen your first moonball shot," said the aide,*

**S**ILAS SAW THE BOY first thing. He was out against the barn shooting baskets, even though it was an hour past sundown and the ground was still wet. A good sign. Silas pulled his mud-spattered Pontiac into the little worm-down shelf by the front porch where the forsythia was and got out, avoiding puddles.

The boy had spotted him. He stood with the ball cradled loosely on his hip, watching, as Silas approached cautiously, looking at the ground, not wanting to get his shoes muddy.

"Howdy."

The boy nodded. "Ma's over to the house, watching TV."

"It ain't your ma I came to see," said Silas, smiling. "It's you."

The boy frowned, his pale blue eyes blinking rapidly. Silas could almost feel the thinking going on under the thatch of bright red hair. With a detached professional eye, he noted the thick legs, the muscular buttocks and torso, the stubby arms.

The coach over at Culver was right, Silas reflected; The kid looked slow as a freight train, and

he couldn't have been an inch over five-foot-nine. Perfect.

"I hear you can shoot," Silas said.

The boy shrugged. "Are you a scout?"

Without answering, Silas walked closer to the basket. The ground fronting it was packed so hard it was almost playable, even after all the rain. And it was a shooter's basket, for sure. The way the backboard came out from the barn on its rig of two-by-fours, there wasn't enough to drive the baseline, and someone making a straightaway layup would have to break his momentum quickly in order to avoid crashing into the side of the barn itself. And the apron in front of the basket had been worn smooth of grass for a distance of about thirty feet in all directions.

Thirty feet. Couldn't beat that.

"Play you a game of horse," Silas said.

The boy smiled, and tossed Silas the ball. He fingered its slick, grimy surface gingerly, trying not to show his distaste. He was a city boy himself, had learned his basketball on the playgrounds and the YMCA courts, where control of the ball was all-important, where it was dribbling and moves and leaping that counted. You had to have a ball with some tread left for that. Whereas a shooter—

He threw the ball back to the boy and wiped his hands on his pants.

"Shoot," he said.

When it was over, Silas turned and walked back to the car. The boy trailed behind him, curious, wondering what was coming next. Silas reached into the back seat for his gym shoes, put them on without speaking. The boy watched thoughtfully, chewing on his lip.

"What school you with?"

"No school," Silas said, shortly, and walked back to the court, avoiding puddles.

"I thought maybe you was from State," the boy said. "They sent me a letter and all."

"I guess I know what you thought," Silas said. "But you couldn't play basketball for State nor anyone else either, except maybe for some rinky-dink junior college."

He watched the hurt come into the boy's eyes, pleased. It was a good sign. It meant that in spite of all the countless hours of dreaming, the boy already knew that what Silas was telling him was the truth.

"I just whupped you in horse," the boy muttered. "I didn't miss a shot."

"You're a shooter," Silas agreed. Then he allowed some of the old contempt to drift into his voice. "But you think they'd let you sit around the perimeter banging away from thirty feet at State? Shit! Besides, you've got about a D-plus average, ain't that right? Ain't no school going to touch nobody with a D-plus average. No way!"

Silas watched the boy worry that

one around in his mind a bit. Poor dumb kid; he'd probably been dreaming since he was ten about playing for some college, practiced from sunup to sunset, watched ball after ball settle in the cords, and never really got it through his mind that you can't play basketball after graduating from high school if you can't *move!* Especially if you're barely five-foot-nine.

"I heard they let you take summer courses."

"Summer courses. Shit! Take all the goddamn summer courses you want. You're still gonna be pitching hay next fall for eight bucks an hour."

Silas watched the hurt come back into the boy's face, but refused to let it touch him. Why should he? What he'd said had been God's honest truth, and if the boy didn't know it by now, he'd know it in the next five minutes, after Silas treated him to some sweet old playground moves. And it wasn't as if he'd come all the way from Richmond just to show the kid up, after all. The kid was a shooter. Goddamn, was he ever a shooter! He'd drawn nothing but twine in ten or twelve shots, none of them from closer than twenty feet, and that was worth something these days. So, depending on what happened in the next ten minutes, he'd make the kid an offer. That much was certain. Only question was, how little could he get him for . . .

"If you ain't a scout, what are

you anyway?" The boy was looking at the ground now, dribbling the ball slowly.

"Didn't say I wasn't a scout," said Silas. "Said I wasn't with no school."

He emphasized the last word with a meaningful raise of the eyebrow but he couldn't tell if the kid had noticed it or not. The ball continued to move back and forth between the packed dirt and the hand, ringing wheezily each time it struck.

"What then?" The boy risked a glance at Silas. "Pro?"

"How about you let me ask the questions?" said Silas. His left hand snaked out and grabbed the ball in mid-air. The boy looked up, blinking.

"Play you a game of one-on-one. To eleven. Winners out." The boy regarded him blankly. "That means the same as—."

"I know what it means," said the boy.

Silas took the ball and let it hang low to the ground. He watched the boy's thick feet while making quick, feinting moves with his shoulders. When he saw the opening he moved quickly, dribbled twice, and went in for a layup, uncontested. Then he took the ball back, waiting fifteen feet from the basket while the boy shambled over, feinted, and went to his left for another layup. The next time he went right up the middle with his back to the basket and sank a short jump-shot.

"That's three to nothing," Silas said, smiling. "You playing any defense?"

The boy shrugged and slouched into position. This time when Silas went around him the ball hit a bump and he had trouble recovering before he flipped in a neat little reverse.

"You walked," said the boy, and held out his hands for the ball.

Eleven shots later Silas went back to the car and changed his shoes. The kid was one helluva shooter. Whenever Silas had crowded him the kid had just raised the ball over his head and lobbed it into the basket—even with a hand in his face.

"You like it around here?" Silas waved his arm at nothing in particular—the rickety house with the screened-in porch, the barn, the culvert running uphill behind the house, the spindly forsythia, the sky.

The boy raised his shoulders a fraction of an inch, dropped them.

"How'd you like to go live somewhere else?"

"Where?"

"Oh, someplace where there's no birds singing, no ma inside watching the TV, no rain, none of this . . . green shit."

"New York?" The veil had come off the boy's eyes, and he was watching Silas curiously.

"Naw, not New York." To his surprise, Silas felt himself touching the boy, gently, on the shoulder.

"Place I'm talking about ain't for everybody. There's some that like it, some that don't. But the money's good, and they got women there . . ."

"Where?" said the boy, his eyes suddenly bright.

Silas smiled. He had him.

"You know damn well where," he said. "Let's go on in and talk to your ma."

**A**BU WAS HAVING the green dream again.

He was in the air, floating. It was like being in a jungle, or a huge clump of cypress, where the trunks of the trees were invisible. Overhead, the canopy of high branches and leaves formed a kind of dome which curved suddenly to a short horizon. It was dark in there, greendark and quiet. He could not see the sun or sky.

He floated over to where the sides curved down. In deep slow-motion he descended, touched ground lightly, then was up again. He strained upward, as a diver coming out of his tuck reaches for the water.

He had never reached the top; gravity caught him this time too, snared him in its invisible loop, braked him, brought him down. He watched the canopy recede, then landed crouched on all fours. This time he felt the power surging in his legs, felt the correctness of the timing, the dream-like explosiveness of the leap. Upward he soared, toward

the dome which trembled and chittered in an unseen wind.

He knew he would reach it this time. This time he would bury his head in all that green witchery, laughing like a child again, and sing some of the old music before he came down.

*Hi-eeya epaduma wadda h'rumba  
toi . . .*

May my spirit assume the aspect of tall grasses . . .

But when he reached the top he went straight on through.

The woman heard him waking. She climbed down from her bunk, went to the pipe and filled it.

"This time I was released," he said in his peculiar, singsong voice. "Always before I have been unable to come to the top. Always before I had thought only to feel the leaves before surfacing again. Even in dreaming I have understood that one must always surface."

"Dreams are funny," she said.

"I had great velocity," he said. "It was unexpected. I saw this moon when I came through."

"Dreams are funny," she repeated, not knowing what else to say. She sensed his puzzlement, knew that for him a dream was a gift from the spirit world, a portent, perhaps a warning. A man must consider it, stalk its meaning like a hunter. Or it would end up stalking him instead.

She, on the other hand, was from Philadelphia.

The pipe was out. She took it

from him, went to the jar, saw that they were almost out of kief. She would have to tell Sheffield in the morning.

"I cannot riddle it," he said, finally.

"It's probably just the old homesickness taking another form. Or maybe it was a way of reminding yourself that you're a short-timer now. Your contract will be up in less than a year. You'll be going home."

Abu smoked for a while in silence. Then he said, "In your country the people believe that when a man dies his spirit soars upwards, into the sky, away from the earth. In my country it is understood that the spirit instantly plunges into the heart of the earth itself, as if it were a creature of gravity, just like men."

"What's all this talk about dying," she chided. "You'd best come to bed now. You can puzzle on it in the morning."

"It was this moon I saw," he said.

**S**HEFFIELD GREETED MOIRA with a smile and perfunctory hug, then motioned to the leatherette chair in front of his desk. It was always a pleasure to see her—especially since she called on him infrequently, and, unlike some of the others, made reasonable requests. Kief for Abu, usually, or pills for herself.

Either of which he could invariably deliver. As Operations Man-

ager he had made a lot connections with the people over in Supply, and when the shipments came in it was only natural that a crate of oranges or an occasional steak would find their way to his office, to be dispensed with as he wished. No telling how many mutinies had been averted by a box of chocolate bars.

"Let me guess," he said. "Abu's running out of dope."

"Yes," she said. "He smoked the last of it this morning."

"That makes twice this month, doesn't it?"

"It's him that smokes it," she said wearily. "Not me."

"Of course." He went to the safe and returned with a small cellophane packet, placing it carefully on the desk. She made no move to pick it up.

"Is something the matter?"

Moira drummed her fingers against the desk top, hesitated.

"Yes," she said finally. "There is something the matter."

Something in her tone made Sheffield pause.

"Nothing insurmountable, I hope," he said carefully. Moira was a veteran, having spent as much time on the moon as Sheffield himself, and had witnessed any number of . . . disturbances. Without losing her sense of perspective.

"Please, Moira. You must tell me if something is troubling you. It's my job, my responsibility to take care of such matters. You were about to say . . . ?"

"Abu is homesick."

"Abu is always homesick," he said, flatly. "What else?"

"This time it's different. It's more serious. He's not getting enough sleep. He's tired, withdrawn."

"It doesn't seem to have affected his performance. He's still number one on the court."

Moira managed a small, wry smile. "And he's about number ten in bed. He hasn't slept with me for months."

So that's it, he thought. Oh well . . . he'd had to deal with problems of the bedroom many times before. In fact, it was an area in which he took a special pride. All that was needed was some delicacy, a dash of diplomacy, and a slight rearrangement of the accommodations. Usually it was the players who came to him, complaining about their women, but even when the reverse was true he'd found some way of dealing with it.

"I see," he said. "Well. You and Abu have been together for almost two years now. Perhaps it's time for a change."

"A change isn't going to help him," she said, not looking up.

"Maybe not. But it might help you."

Moira looked amused. "Come off it, Shef. Since when have you really given a damn about me or any of the other women up here?"

"I—"

"You don't have to explain or

apologize. I mean we're both in the same line of business, right? Keep the boys happy and well-fed and well-fucked, and generally see to it that they show up on the court twice a week."

"They are *paid*—and paid very well—for what they do on the court." He sighed. "Look. Of course I try and see that their needs are met. And that means seeing to it that *everybody* is as comfortable and happy as possible under the circumstances."

"I know, I know." Her voice mocked him, gently. "We are all one family up here. We have our ups and downs, same as the New York Yankees. Jesus, Shef, the last thing I need is a pep talk."

"I see." He tried, not very successfully, to assume a business-like tone. "What *do* you need, then?"

She regarded him bleakly. "Honest to God, I don't know. I try to remind myself how much we're getting paid for all this. I remember all those checks piling up back home, and I think about the little place I'll get, up on the Hudson Bay. And it helps. It helps. I'm an American, and money helps."

"But it does not help Abu. Is that it?"

She shook her head slowly. "When I remind him that he's practically rich enough to buy up the whole West Coast of Africa, he laughs and says only a fool would want to buy a desert."

"He has a point," Sheffield said,

inwardly cursing the steady, even monotonous stream of petty disasters back home, the perpetually gloomy weather and economic forecasts. Sometimes he wished for a real, honest-to-God Catastrophe to rally the troops around; if only California would finally up and break off into the Pacific all at once instead of in bits and pieces, for example, it would make his job a whole lot easier.

"He had a dream last night," said Moira suddenly.

"Yes?" Sheffield knew all about Abu's dreams.

"It's one he's had before, only last night it had a kind of ending. And whatever it was, it upset him."

"It upset him," Sheffield repeated drily. In spite of himself, he was becoming irritated. It was bad enough that he had to bust his ass every which way to cope with his players' material needs—seeing to it that they had enough food, enough dope, enough love so that their game didn't deteriorate. But it was positively maddening to be expected to cope with something as impalpable as someone's dream. Particularly when that someone came from West Africa, from a culture as alien to him as a quilting society on Mars. What was he supposed to do? Sit by his bunk and hold his god-damn hand?

"I'll see what I can do," he said, curtly.

"What can you do?" Moira shook her head mournfully. "The

only thing that would help would be to send him home for a while. And that's out of the question."

It was a statement of fact, but Sheffield sensed an undercurrent of hope.

"As you say, it's out of the question. He still has a year to run on his contract."

"Ten months. I don't suppose you could find any medical reason . . ."

"No," he said, softly. "He's in perfect physical shape, which the whole world can see for itself every time he plays. And you know what our friend the shrink would say."

"What if—" She hesitated, biting her lip.

"Go on."

She drew a deep breath and let it out slowly.

"What if I told you that Abu was thinking of killing me last night?"

**W**HEN MOIRA LEFT, Sheffield went over to the small refrigerator and helped himself to a half dozen Gelusil tablets, a tumbler of orange juice to wash them down. He wondered, for what seemed like the hundredth time in the past few months, if his nerves were finally about to go.

*Jesus H. Christ!*

It was too absurd for words. Man wants to kill woman so that Washington will be forced to bring him back to earth to stand trial. Where he will see the grass and trees dancing from the window of

his cell. Man decides not to kill woman because he believes her spirit will be forced to dwell forever in the confines of the moon, always a victim of its tiny gravity. *Incredible!*

Sheffield reached into his desk drawer and punched the rewind switch on his tape recorder, listened glumly to the voices.

"What do you mean, thinking about killing you?"

"It sounds crazy, but I'm sure that's what was going on in his mind. After he'd told me about the dream I went back to sleep. About an hour later I woke up, suddenly, as if I had just discovered a snake was in bed with me. I was afraid to move. I felt him behind me, staring at my neck. He was very, very close. I wanted to turn over and look at him, but I was terrified at what I might see."

"You were dreaming. Dreaming of snakes, maybe."

"No. Because finally I couldn't pretend any longer, and I rolled over and looked at him."

"And?"

"He was staring at me. His face was cold and empty, colder and emptier than it is out there." (Here she had waved a hand, vaguely). "It made my flesh crawl."

"And that's it? That's all there was to it?"

"Then he said, 'I could not leave you to this moon forever,' and got back in his bunk. And that was it."

Sheffield jabbed the STOP

switch, slammed the drawer shut. The suspicion that Moira was right tugged at the back of his mind—an irritant—but there was no case there, nothing to go on, nothing that would satisfy the folks in Washington if he decided to recommend that Abu be given an extended home leave. They would laugh in his face, or, worse, they might just decide to replace him, as if it were his fault that everybody this side of the moon was going zooey. Operations Managers were a dime a dozen, but there was only one Abu.

That was really the key. You just don't send the greatest moonball player in history home on a whim. Especially not when the U.S. Government gets twenty-two percent of the estimated \$50 million that changes hands every time he takes a shot. And most especially, you do not recommend that such an action be taken on the strength of the unsubstantiated word of a concubine . . .

So. His hands were tied. He'd mention the incident in his weekly report, and send both of them around to see the psychiatrist. That much, at least, was indicated. But he already knew what the psychiatrist would say. It was what he always said, what Washington paid him to say.

*Keep them in their traces, unless they're basket cases.*

He wondered, momentarily, if Washington had any idea that their

shrink had begun talking in rhyme.

The intercom crackled.

"Yes?"

"Harmon Ludlow to see you. Shall I send him in?"

Sheffield massaged his temples wearily, trying to collect his thoughts. Harmon Ludlow, the new kid. One of Silas' finds. A good shooter, but not great. And probably not destined for stardom, though he still needed to be handled carefully. He'd been in once before, a victim of the malaise which affected everyone, complaining about the food, the women, the cramped accommodations. Plus the beginnings of a genuine attack of homesickness once the newness of the surroundings wore off. About what you'd expect of a kid away from home for the first time.

"Send him in."

The door opened and the young man with the thatch of red hair came in slowly, stood in front of the desk, eyes averted.

"Sit down, Harmon. Good to see you."

The boy shifted his feet, blinked rapidly, but remained standing.

"Well. What can I do you for this time?" His tone was deliberately casual. He sensed something coming, something heavy and depressing, and he wanted to minimize its impact from the start. He nodded again in the direction of the chair.

"I want to go home," the boy said.

Sheffield nodded, then pretended to be momentarily absorbed in the papers before him. "Of course you do."

"You don't understand." The boy slumped in the chair, buried his face in his hands. "I just can't stand it up here no more." When Sheffield said nothing, he hurried on. "You've been real nice to me, everyone's been real nice. But I can't take it any more. It's worse than prison, no matter what they say. And I just can't take it any more."

The real despair in his voice stabbed at Sheffield, caused him to wince inside before answering. He had confronted homesickness before, in himself as well as his players, and prided himself on having successfully immunized himself against the dull ache that accompanied it. Now, he felt a mild surprise that he could still feel pain in others. Was it a sign that he was losing his grip?

"Of course you can, Harmon. Of course you can." His tone was syrupy, soothing. "Look, if you *didn't* want to go home at this stage—then I'd think something was wrong with you. You *hurt* inside. You'd like to be back in West Virginia hunting squirrels, or just generally fucking off under all that wide open sky." When the boy said nothing, Sheffield continued. "Everybody wants to go home, Harmon. Everybody wants to, sometime or other. There's not a

man or woman among us who hasn't looked out over all that dead land, and seen the earth hanging in the sky like a big blue ball, and wanted to grab it. Sometimes I think it would be better all the way around if we were over on the dark side, so we wouldn't have earth in our eyes so much, reminding us where we came from."

The boy sniffled quietly, and Sheffield half expected him to wipe his nose with his sleeve. There was something else. What?

"It's that, but it ain't just that." He paused. "It's my ma, Mr. Sheffield. She's gonna die before I see her again. I just know it!"

Which means, thought Sheffield, that you just suspect it. He breathed a sigh of relief.

"She's not well, your ma?"

The boy shook his head, his eyes still on the floor. "She's vomiting all the time now. The doctors don't know what it is, and she wants me to come home." He fumbled in his pocket and withdrew a tattered sheet of blue stationery. "She says so in this letter, so I really have to go."

The innocence of the appeal bothered Sheffield. *I do what my mother tells me.* He had a fleeting impression of Harmon's mother, sitting in her shiny new ranch-style house, in a suburb of Charleston probably, mooning (no pun intended) over the loss of her son between trips to the bathroom. It was a nasty thought, and it irritated him that it should have entered his

mind, almost forcing a giggle. When he spoke, that irritation was only barely concealed.

"The only thing you *have* to do, Harmon, is to honor your contract with the government. Look: I hate to be crass, but it just so happens that a lot of people down there are vomiting these days. In fact, people have been throwing up since the dawn of mankind, and they have usually survived. Now, I'm very sorry to hear that your mother isn't feeling well, but you have to understand that I can't give everybody a pass home just because someone in their family is sick. We wouldn't have a player left up here if I did."

"She ain't just sick, she's gonna die!"

Sheffield sighed sympathetically, but his voice was firm. "We're all going to die, sooner or later. Just be thankful you're up here where the conditions are sterile, and not down there with the rest of them, puking your guts out. And while you're at it, you might just say a word of thanks to the people who pay your salary so you can afford to get her a doctor who knows what the hell he's doing, and not some god-damned vet!"

The boy moaned. "She don't need a doctor, she needs me!"

"Well so do a lot of other people, including the government of the United States of America!" Sheffield slammed his hand on the desk and the boy's head bobbed up, his eyes wide and blinking. "Look,

I'll tell it to you straight, Harmon. Nobody gets off this place before their time is up! Nobody! And there's a reason for that, and I'll tell you what it is. The government decided a long time ago to make this a pretty damn near ironclad rule, because in the early days they *did* allow people to go home on leave. And what happened? Half of them never showed up for the trip back, disappeared without a trace, vanished into the hills where they lived on snake and racoon for all I know. As for the rest of them—the ones who decided to honor their contracts and come back—they had to wait around in the training rooms until their bodies became reaccustomed to one-sixth G, sometimes for *months*, until they could finally get back on the fucking court and do their fucking job!"

"You don't have to scream at me," the boy said, cringing.

"I'm glad to hear that, Harmon. I don't like shouting at people, especially my players, because I am here to serve you as well as the government, and I take my job seriously. But I cannot tell you, I cannot *tell* you how sick I am of people coming to me and demanding that they be allowed to go home. I'm tired of being threatened that such and such will happen if they are not given an immediate leave of absence, and passage on the first ship out. Only this morning, a woman came to me and told me that her man had threatened to

kill her, that he came *this* close to actually strangling her to death. And do you know why? Because he figured that I would *have* to send him home, because we have no courts up here, no trials by jury on the moon."

The boy nodded slowly. "Abu's woman."

"Let's leave names out of this. The thing I want you to understand is this: it would have done him no good! And why? Because I would have found a way to cover it up!" He paused, letting the lie sink in, hoping that the boy believed him, surprised at his own audacity. "Yes! That's right! I would have found some way to have it declared an accidental death. Do you follow me? It would not have worked! *Murder* would not have worked, Harmon! Murder. That's how important it is to me and the government, the folks back home in Washington."

For a long moment the boy said nothing. Then: "It must have been Abu." His voice was sullen, resentful. "You'd let a nigger kill a white woman and get away with it. Just on account of he makes you so much money."

"It wasn't Abu," Sheffield said quickly. Too quickly, perhaps. He felt momentarily off balance, cursed himself for having brought the subject up at all. "But as long as you bring him up . . . Yes. He wants to go home as much as anybody else. And yet I ask you: here is a man

who was discovered six years ago, pitching peanuts—*peanuts*—into a tin can somewhere in Africa, and making bets with an occasional tourist. All around him, everywhere he looked, people were starving and swatting away the flies, blistering under the sun. And so was he. Today, he is the best-paid athlete in the world. And tonight, Harmon, this very evening, you are going to jump center against him, and in the course of the game a hundred million people are going to bet billions of dollars while both of you try to put a ball through a hoop, and *you* tell me you'd rather be home watching your mother puke, and *he* tells me he'd rather be back in Africa pitching peanuts and scratching his ass while the rest of his country dries up and blows away! Well, I don't want to hear about it! It doesn't make any sense, and I just don't want to hear about it! Not from you, or him, or anybody else! Do you understand me?"

"I just want to go home," the boy said, his voice trembling.

"Well you can't go home!" Sheffield shouted. "Get that through your thick head! You can't go home until your contract expires, and that's all there is to it!"

"Please don't yell at me." It was almost a whisper.

Sheffield stood and came around the desk. His legs felt weak, and he had difficulty controlling his voice. "Get out. And don't come back until you've thought about what I

said. Then we'll sit down and talk about this like reasonable men."

When the boy was at the door he turned to Sheffield. His face was flushed, angry. "This place stinks," he said. "And I don't care what you say. I'm going home."

**A**BU WAS EARLY. The training room with its dank smell and the gleaming chrome tables and exercise machines was empty except for Cooper, the goalie.

"How's it going, Champ?"

Abu smiled in return, stripped, and pulled on the red uniform with the blue and white numerals and the emblem of the hawk gliding over the moon's horizon. The uniform was stiff, but a couple of good stretches would work out the kinks. Then it would feel comfortable, like a second skin.

Wearing it always reminded him of snakes. He liked that. He thought of snakes, slow and powerful, coiled in the sun.

"Run their butts off," Cooper said, as Abu headed for the court. "Shoot their goddamn eyes out."

In the arena, he went over to the rack and fetched a ball and returned to the center of the court and jumped. He went straight up, maybe a dozen feet, then settled down again, his slippers gripping the Vel-Tec surface with its tiny, uncountable bristles. Above him curved the huge invisible dome, like the night eye of a frog against its backdrop of black space, and stars.

He went higher the second time, hanging in the air at twenty feet, scanning the short horizon. There was enough light, earthlight, to discern the ghostly, pitted surface, the dead blistered hills rising and falling, sloping towards the horizon where the full earth hung, waiting. He stayed like that for a moment, watching, and then came down.

Cooper came out, loped over to his position by the goal, and signaled that he was ready to start the warmups. Abu jumped, and slowly rose, holding the ball loosely at his chest. At the top of his leap he feinted, watched Cooper leave his feet, rising to protect the goal. He waited until he was halfway down before he shot. The ball came off his fingertips nicely and arched towards the goal, fifty feet away. Cooper reached the height of his jump much too soon, hopelessly out of position. Descending, he watched the ball cleave through the air and settle with a lazy, whipping motion in the back of the net.

"Shoot their eyes out, Champ."

He missed his next two shots, then called for a high pass. Cooper floated the ball in a flat arc upward, then crouched, waiting to defend the goal. Abu took the pass on the ascent, released it almost immediately. The goalie judged its flight, leaped. He was in good position this time, but the ball had too much arc on it, coming down at an impossibly steep angle, like a mortar shell, langorous, consuming

time, as if its momentum had been magically retarded. It barely rippled the net in passing.

"Shoot their goddamn eyes out," Cooper chuckled.

When the others came out for their warmups, Abu left the court and followed the narrow corridor up to the observation deck. Behind him was the arena, with its small, brightly colored figures going through the pre-game ballet, its cameras and technicians making ready for the evening's broadcast, and the gamblers, moving into position behind the small betting consoles, punching up the pre-game odds, laughing and sipping drinks, watching the lazy activity below. Before him, suspended over the pale dead hills, was Earth, a blue, unreachable dream. He sat, cross-legged, in a chair facing the horizon, and waited for the old music to come.

*T'abu suya vahanu wa'ena toi,*  
he sang, softly.

*Ta mo'bah vahana lamha*

*Lapo rizha sum*

*Na lapo doy'ha hri.*

In death, may my spirit seek the earth's center

As the moonball seeks the center of the net.

Let it go straightly.

Let it not be fooled by this old moon.

**S**ILAS IGNORED THE SIGN informing him that the Tidewater Moonball Facility was a kilometer ahead and

swung the Pontiac off the Interstate and down the ramp into a seam of dark and quiet running parallel to and below the traffic. This close to gametime it was all bumper-to-bumper up above as automobiles jockeyed for position to get into the parking lots that ringed the stadium. Which was just fine if you happened to like paying ten bucks for the privilege of having your car be there when you got out.

On the other hand, if you were a gambling man you approached the stadium from the rear and made other arrangements. Which meant traversing about ten blocks of dimly lit streets at an even fifty k.p.h. with the windows rolled and your eyes glued to the road so that you didn't accidentally run over some kid and start a riot.

That was the hairiest part. There was no light to speak of; the high-intensity lamps which now attracted knots of black-skinned teenagers had long ago been snuffed out by stone or pistol shot, and the shambling houses which lined the streets were mostly dark and abandoned-looking, being inhabited now by an army of squatters who had to endure the floodwaters which swallowed half of Hampton every fall. (When that happened, Silas took the Interstate and paid his ten bucks like everybody else.)

As he came within two blocks he could see the dome of the stadium, rising like a bright lilac bubble above the darkened roofs, occupy-

ing its own man-made hill, seemingly in deference to the notion that man must have his recreation even when he is drowning. But it was beautiful, like an amethyst glowing in a nest of diamonds and flashing pinpoint rubies, or the electric palace he'd dreamed of as a kid.

And it was beauty that was at the heart of moonball in the first place, as indispensable to pleasure as the gaming itself. Inside the arena or out, it was the visuals that hooked a man; it was beauty's talon that pulled him away from the racetracks and the backroom poker games, beauty that set a man to dreaming moonball and its slow ballet, as luminous and unsettling as a hallucinogen. His pulse quickened as he glanced at the dashboard clock. Fifteen minutes to the buzzer. He'd have to hurry, and hope his usual boy was there.

Near the end of a dead-end street he braked and pulled the car onto what had once been somebody's front lawn. He flashed his lights twice and waited, motor running. A movement on the porch, black against black, and a form appeared out of the shadow at his window. He recognized the teeth. Jake.

He left the keys in the ignition and got out.

"Be lucky," Jake said, sliding behind the wheel.

"Luck has nothing to do with it," Silas said. "See you at eleven."

As was their custom, Jake let him

get a respectable distance up the hill before throwing the Pontiac into reverse and peeling off down the street to commence, most likely, a two-hour crosstown orgy. But what the hell. It beat paying the bastards for parking.

At the entrance to the lobby he flashed his season pass and was waved through, then found himself squeezed into a tangle of flesh at the concession stand, where he had to wait five minutes for a beer. Around him the crowd surged and shouted; animated discussions everywhere. It was the controlled kind of bedlam which made you think of a cockfight, or the crowd at a *hai a lai* game. To Silas it felt like home.

The lobby itself was a horseshoe-shaped enclosure, bright and plush, which hugged the arena on three sides. Tiers of flashing wall-monitors ran from floor to ceiling, indexing the pre-game odds. He gave them a cursory look. The Hawks favored by four goals over the Eagles, Abu a three-goal choice to take individual scoring honors.

And then more numbers, numbers setting the prices on the auction bidding and the pools, numbers which he never even bothered to read. A man could get lost in the endless combinations of moonball betting; experience had taught him to keep things simple. Numbers were seductive; a betting console was access to a living system whose blood was number, and a means af-

fecting it. Press a button and the numbers change, everybody's numbers.

It was hard not to play with power like that.

As he moved up the ramp towards his booth Silas felt his nerves calming, his mind moving into a state of alertness, and just to keep it that way, he popped a meth-tab into his mouth and washed it down with a careful sip of beer.

Now and then he recognized a face, nodded, but did not speak. Crowds he could do without, or people, for that matter. Which was one of the reasons he had allowed himself the luxury of buying a season ticket in one of the private booths that circled the arena, a pocket of silence where he could think, without distractions. Concentration: that was the key to a profitable evening of moonball. Because when a shot was thrown up, you had between one and five seconds to decide if it was on target, and the more your mind wavered the longer it took to punch up the correct bet. The longer you waited the more the odds shifted downward and the less money you made. It was that simple.

He entered the booth just as the National Anthem began. A quick glance told him the reception would be good, as usual. The holograph signals originating in Copernicus were relayed through satellite to ground station, and occasionally they had to fight through a storm,

became twisted beyond recognition. But not now. All was as it should have been: perfect.

He draped his jacket over the back of the chair and inserted his card in the betting console. It hummed, suddenly alive. Below him, holographed in the screen, was the court, a rough oval running eighty feet from goal to goal, a field of green under the curving dome where the night stars twinkled. Eight small figures stood at its center, hands clasped lightly behind them as they stared at the flag.

It was hard to think of them as illusions, but that was what they were: massed intensities of light and color one-third their actual size. Beauty, that was the only word for it. Sheer motherhumping beauty that burned holes in your eyes to your brain.

As the Anthem concluded and the players loped over to their benches for a last-minute conference, Silas suddenly frowned. His eyes raked the court. Where the hell was Harmon?

Quickly he punched up the injury report.

LUDLOW. NO START. STOMACH UPSET. MAY SEE LIMITED DUTY.

He groaned. Damn! The kid was usually as healthy as a cow, not to mention the fact that you weren't supposed to get sick up there in the first place. Nerves, maybe, or else an incipient kind of melancholy which, according to the sports

pages, was making its rounds more frequently among the athletes.

He sat down glumly, closed his eyes—and finally felt the methedrine going to work, opening up the synapses, flooding the brain with protein. He exhorted the cells: "Fire, you little bastards, fire!" His teeth began to grind, a sure sign that the drug had taken effect. Meth: there was nothing quite like it.

He heard the buzzer and opened his eyes. Gametime.

The ball shot up from the center hole on its column of compressed air, and right off the bat Abu attempted a shot on goal, swimming upward to take the toss at its highest point and releasing it the same instant, while everyone and his mother was expecting a pass to the forward in the attacking zone.

And the shot looked true from where Silas was sitting. He couldn't have asked for a better angle, the ball curling through the air almost head-on—but at the last moment he decided to pass up the bet. His rule of thumb was if you're even a half-second late in reading a shot, lay off. Hold back until you *know* a shot's coming. Anticipation was everything; *then* watch the curve of the shooter's hand or the set of his arm in the follow-through. Check the goalie's position and the height of the ball. Figure out how everyone else is betting. And, most important, get your own money down in less than three seconds,

when the odds are longest.

A groan from the crowd, a few scattered cheers. The Eagle goalie, at the last instant, had tipped the ball away.

Silas allowed himself a small, self-congratulatory smile.

He decided to pace himself, wait for the opening—and then come on like gangbusters.

At the first time-out he lit a cigarette. Instant buzz. Mixing nicotine with meth was a lot like adding lead to gasoline; it boosted the cerebral octane perceptibly. His body tingled sweetly, like a finely tuned machine. His brain whirred. So far so good. He was ahead twenty bucks, and while that wasn't a whole hell of a lot, it beat being twenty in the hole. And Abu, after that first miss had sunk his next three, which meant that the odds were bound to get longer as everyone waited for the law of averages to catch up.

But sometimes they didn't, and that was all the opening he would need.

His eyes strayed to the Eagle bench. Seated at the far end, his hands clasped together as if in prayer, was Harmon Ludlow. Shot full of dramamine, no doubt, but at least he was out.

And then a pleasant surprise. At the buzzer the boy slapped Number Six on the rump and trudged out to center court, his steps even in that bewitched gravity somehow slow and ponderous.

Alright! Time for some action! Silas smothered his cigarette and leaned forward, mind racing, his fingers poised lightly at the console. Was it his imagination, or did he actually sense then for the first time that something was up? Wasn't there something in the way Ludlow converged on Abu in the backcourt that suggested purpose, determination?

Maybe. Or maybe it was just some of that good old stalking defense the Eagles were famous for.

This time two forwards faced off.

The tap went deep into the Hawks' defending zone. Abu retreated and took it on the bounce, whirled, his eyes on Ludlow, six feet away and closing.

For a long second, Abu did not move.

He seemed to be transfixed, watching Ludlow's approach with the intense unwavering concentration of a cobra following the musician's flute: feet apart and firmly planted, his upper body weaving slightly, his black gaze fixed.

The crowd, sensing something, hushed.

Ludlow hesitated, fractionally, and appeared to fumble with his sleeve.

That was the moment Abu chose to jump.

It wasn't a short, passing leap, the kind you might expect from a man so deep in his own zone, someone backed up close to his own goal; This was a shooting jump.

Silas watched, transfixed, as the small black man in the bright red uniform rose like a flame at the far end of the court; and rose: past the lower tiers and the middle tiers and the upper tiers where even the spectators had fallen silent; up, to the very lip of the dome itself so that for one astounding instant it seemed as if he must be higher even than the goal on the near side of the court where the Eagle goalie stood flatfooted and helpless, watching in open-mouthed amazement as Abu let fly the ball.

They said, later, that it took a full fourteen seconds for the ball to travel this unprecedented distance.

The odds were never longer. Silas got \$500 down in 1.8 seconds.

There didn't seem to be any reason for Ludlow's jump. It was too late, useless. He came off the floor badly, clumsily, lending credence to his blubbering assertion later, in the courtroom back on Earth, that he had never meant to stick him so hard and so deep. That he had just wanted to come home. But Abu came a long way down; it was more collision than attack, and the silver slashing at the shoulder bit the throat instead.

It had a dreamlike quality, almost beautiful.

The ball descended, homing. The air went red.

And blood and body and knife touched down, together, as the ball slipped languorously through the net, for a perfect score. ★

*Sometimes, you have to.*



# *a nice girl like me*

## Gail Kimberly

**A** SHIP FROM EARTH is in port tonight, and I will go into town now, by myself. Ensch went to the sea this morning. He'll be there three days, maybe four if this time is like the other times, and I'm already lonely.

I should have recognized the signs, should have known that it was time for him to go again. It's spring here on Peleus. (The year is about eleven Earth-months long.) In this area we have a cold winter with snow and a sudden, breathless spring that sweeps in on wet, warm, westerly winds. A change of seasons is one of the signs.

He woke me before dawn this morning, rocking our sleeping hammock when he left it, leaving a cold emptiness beside me. I looked up and saw him standing in front of the thick glass wall of our room, a dark shape against the mother-of-pearl morning.

"What's the matter?"

He didn't turn around when he answered. "Sorry I woke you," he

said. "I couldn't sleep."

"You're not sick, are you?" But Ensch is never sick. He's one of the two physicians in our little town but he's never very busy; Peleans are a healthy race.

He turned and smiled down at me then, his teeth gleaming white against his dark blue skin. "No," he said, "just want to be up and doing something."

That restlessness is another sign, but I still didn't guess what it meant. Ensch couldn't eat and wandered through the house and the garden aimlessly for a while until he suddenly said: "I'm leaving for the sea now, Judy. See you in a few days." And just that quickly he had packed a small bag and was gone.

It's best that he doesn't linger. He knows how much I would like to be going with him and so he avoids the tears and sad goodbyes.

Now I've tidied the house and eaten my evening meal in the garden and turned the ambisound up

high so the music will fill the emptiness, but the solitude is awful. I must go into town tonight.

I put on the silver dress and the matching silver shoes that I brought from Los Angeles, and I go out quickly, leaving the tinkling music on low to welcome me when I come back. I close the glass door behind me, the high heels of my shoes click down our steep stone stairway.

Halfway down the stairs I pause to breathe in the vanilla scent of the mysym trees that surround the house, thinking that the air in the Naked Nymph will stink of smoke and the strong, alcohol-laden breath of drunken spacers. After a moment I go on, smoothing the skirt of the dress around my hips. Short . . . they like it short, the Earthmen, and it's uncomfortably tight, after the loose, graceful robes we wear here on Peleus.

I remember to walk carefully along the stepping-stone path leading across the orange expanse of the cilia marsh so my heels won't sink into the mud. It isn't a long walk to the Naked Nymph, which is one of the reasons I've chosen that as my place.

There are other bars in town: Randolph's, and The Oasis, but they are farther along Main Street, closer to the spaceport, and the men who go to them are the eager ones, the ravishers, too greedy for sensations they haven't had for all the long months in space.

The gravity here on Peleus is as strong as Earth's; I like to think the Naked Nymph gets the gentler ones, the ones who have time to stroll the streets of our town, to see the beauty and the strangeness, taste the flavor of life on Peleus first, even if for only a little while. But maybe that's just my own private illusion. It's mostly the cargo ships that come here, not passenger liners, and the spacers who crew them are men pretty much of a kind.

The air is warm over the cilia marsh, rising in a fine orange mist, and I pull a scarf out of my purse and cover my hair so that my curls won't straighten in the dampness. The first moon is just rising, outlining the row of tall, straight, arrow-like trees that mark the edge of the marsh. In a few moments I walk through the row and see our neighbors' houses on their separate little hills; Milom's glass cylinder on the first rise, to my right, dark and empty now; Luar's faceted mansion just beyond it, reflecting the silver moonlight on three of its walls so that it almost seems there are lights on inside.

Now I climb the steps to Main Street, seeing the dark wall of the market on one side of me and then, at the top of the stairs, the souvenir shops across the street. Two of them are open, but of course there will be only the old men there—Joocper and Tanjlr, who no longer go to sea. Almost everyone else in town has gone, and the street is

darkened tonight, and deserted, so that I can hear the music from the Naked Nymph even before I see the flashing green sign that shows a life-size woman with a shape no woman ever had, and the Earthmen swarming around the front of it.

I don't like the sign. It doesn't suit the place at all, but it pulls in the clients, I guess.

The four men outside the front door seem to be arguing about something. They have pale skin and heavy beards, and they wear dark pants and brightly colored shirts, all fastened and buttoned and zippered and belted on them. Visitors here always make fun of the clothing the Peleans wear, but none of them would change back if they got used to the comfort of the robes, as I have.

They stop arguing as I approach them, and there are whistles and the usual candid remarks about my appearance. They watch me push open the heavy door, one of them reaching out an arm to help me, and they follow me inside. Drunk, of course. All of them.

They always want me to drink with them and I've never liked the taste or the effect of liquor on me or on them. I much prefer the pink-leaved herb that Ensch introduced me to; that doesn't affect my speech or mobility but produces a lovely sensation that lasts as long as I want it to, then disappears with a wish. (I don't care for the sensalators. I don't like the idea of probes mess-

ing around in my brain. Of course, I'll probably use them later on—after I can't do this any more—but time enough to think about that when it's necessary.)

Inside, I cross the thick carpet to the desk where Bandal, the owner, sits sketching a spacer standing near her. He doesn't know what she's doing, he's absorbed in conversation with his companion, a small, thin woman with red hair—obviously an Earthwoman. They seem interested only in each other, probably cohabs on the same ship who want to see the sights.

The Naked Nymph is part hotel and part bar, getting its trade, like most of the town, from the spacers. Bandal has decorated it with brass and crystal and shining plastiwood, and has hung her own paintings around the place—landscapes, mostly—the prettier parts of Peleus.

"That's a good likeness," I say to her, looking at the sketch. She's caught the attitude and expression perfectly.

"Hi, Judy. Like the usual room for tonight? I've been holding it for you."

"Yes, please," I say, digging thirty Pelean credits out of my purse.

"There's a good crowd in the bar tonight," Bandal says. That means there's mostly men, and I'm happy about that. I won't have anything to do with the female spacers, although some of them have offered me big prices.

Bandal hands me the room key and I drop it in my purse. "You're not at the sea," I say to her. She's not old, and she's certainly attractive.

"Tomorrow I'll go. I couldn't get anyone to stay here for me until tomorrow. My uncle will be here, from the interior." Then she smiles at me in that strange way she always does—as though it hurt her to part her lips—and I shrug and turn away. She knows I'd give anything to be going there myself, but after all, you can't have everything.

I go on through the raindrop curtains into the bar. It's crowded tonight, as Bandal said. I can see only six or seven women—two of them at a table near the curtains are Peleans, women I don't know, probably visitors from the interior. Both of them are elderly, both wearing scarlet and pink robes and pink flowered headdresses that cover their sparse brown hair and frame their blue faces. The other women all seem to be spacers. There are no other women from Earth living here, or anywhere on Peleus, that I know of. Except me.

I go to the bar and sit up on a stool, smiling at Vos, the bartender. He doesn't have to ask, but brings me the only drink I like, a wine they make here that tastes and looks so much like champagne they call it that. He, too, smiles at me strangely, sadly, but then he's a strange man. I don't ask him why he's not away with the others. He has some-

thing physically wrong with him, I believe, and keeps to himself.

I look over the men in the place. A lot of them seem to be too drunk, and some seem close to fighting. I want to match my partners as closely as possible to Ensch's appearance, so I always look for a broad forehead, a straight nose, a firm mouth and chin—a well-built man of medium height. There are several here tonight, and one sits at the other end of the bar, studying me now, so I smile in his direction. He has dark brown hair and eyes, and is about my age.

He's coming toward me now, carrying his drink, signalling to Vos to bring me another champagne, and now he's sitting on the stool beside me. "Hello," he says, his voice confident like his manner. "Mind if I sit here next to you?"

I shake my head. "The seat isn't taken."

"My name's Ed," he says.

"Judy. I used to know a boy named Ed back home."

"Where's home?"

"Pasadena," I say, "in California, the U.S.A."

He grins. "I'm from the U.S. myself. Greensboro, North Carolina. Know where that is?"

"I know where North Carolina is, but I've never been there."

He offers me an American cigarette out of a pack labelled "Safesmoke" and lights both of them, bending close to me.

"Haven't been there myself for a

couple of years. Going back this trip, though."

I sip my champagne. "I'll never go home again," I tell him.

"Why not?"

"Space travel would probably kill me. Two years ago I came here as crewman on a freighter, but I was so sick they had to leave me here. The two Pelean doctors in town here saved my life."

"What was the matter with you?" His hand pats my shoulder as though to erase any pain, and he looks concerned.

"Space sickness was all the ship's doctor could call it. My insides were all turned around, I couldn't eat or sleep, my brain seemed to be crashing around in my skull. I was in a coma when we got here." I remember the first thing I saw of Peleus, when I finally became conscious . . . Ensch's face looking anxiously into mine, his brown eyes and hair startling against his strange blue skin, his long, four-fingered hands cool against my forehead. I hope he will be only three days at the sea instead of four.

"So you live here?" Ed says, as though that's a fate worse than death. He doesn't know.

"I like it here."

He shrugs. "Want to dance?" and we move through the crowd to the little patch of glowing floor near the ambisound selector that Bandal keeps stocked with the most recent music from Earth she can get. Ed

dances well, and when other men approach me to dance with them, I shake my head and stay with him.

We go back to the bar and have another drink, and I learn that he's 26 years old, that he's got a wife and a son in North Carolina, and that he'll pay 75 credits to go to my room with me.

I like him. He's intelligent and funny, and he does remind me of Ensch.

I take him up to the third floor in the tubular glass-walled elevator so he can see the second moon rising over the cilia marshes, a pretty sight that always reminds me of sunset on Earth, the two moons so bright they set the marshes glowing orange and hazy pink and red.

The room I usually take is #333, decorated in a style reminiscent of home, with opaque pale yellow walls and creamy white furniture, and a bright tangerine-colored spread on the round bed. Ed doesn't push me right into it. I knew he wouldn't. He kisses my face and neck and lips, and ruffles my hair, and admires the glass wall that's part of the aquarium the Naked Nymph is built around. It's a gigantic square tank, open at the roof, and it holds some of the most interesting specimens of sea life here on Peleus. Bandal's idea. Always the artist.

I point out to Ed some of the creatures whose names I know, and then we undress. He is passionate and proficient, and I enjoy every

lingering moment. Then we lie in each other's arms, saying nothing, until he gets up from the bed and begins to dress himself, opening his belt to get the money and lay it on the bed beside me.

"Why are you in such a hurry?" I ask him. "Unhappy with me?"

He smiles down at me and shakes his head. "No, I just thought you'd be anxious . . . for another customer," he says.

I shake my head.

"You're a strange one," he says, getting back into bed beside me, pulling me against him. "I thought you girls were only interested in money, and here you are passing up profits."

"The money isn't important," I tell him. "It's just to pay my expenses."

He doesn't question me any more, in fact, he doesn't talk much for a long time. Now and then I watch the sea creatures in the glowing water and feel as peaceful and as placid as they look, their bodies caressed by the silky currents, enveloped in nourishing warmth. It is only when he falls asleep that I let myself think . . . about Ensch and about what he is doing now.

I can see, in the tank, a long coral fish with blue flowers for lateral fins, as it brushes past the shining body of a dolcet, a strange, silvery, mermaid-like mammal with an almost human face that seems to smile. Ensch, stroked by the currents that are the only way of open-

ing the deep-blue pouch on his body, caressed by the warmth of the waters of the Mating Sea, approaching another whose own deep-blue pouch has burst into bloom like a hungry flower as she spreads her arms, waiting.

I close my eyes against the pain and open them again to see the dolcet's mocking smile against the glass of the tank. But it's only a senseless fish, after all, and can't help its smile. There are no fish in the Mating Sea, only Peleans returning to their planet's womb to beget their children, using the short time they have only four times each year. I wonder who will carry my husband's child, and what it is like to feel his passion, that I have never known. I can let myself wonder now, lying beside this man who could be Ensch, who *was* Ensch to me for a little while. And neither of us has been cheated, after all.

It is late when I wake him and tell him I have to go home. He goes with me down to the lobby and I wave to Bandal as I pass, who smiles sleepily and waves back. Ed walks me out to the street. It is empty now, and the moons are covered by clouds. "I hope you've given me a baby," I tell him. "Ensch and I want a baby."

He only smiles in a puzzled way and watches me as I go down the street toward home. He doesn't understand that Ensch and I have so much together; and after all, you can't have everything. ★

# A STEP FARTHER OUT

JERRY POURNELLE Ph. D.

SCIENCE FACT

THE BIG RAIN

**M**ANKIND NEEDS FRONTIERS. We need new worlds to conquer, impossible odds to overcome, a place of escape from bureaucracy and government; a place where life is hard but the problems are simple, requiring no more than courage, determination, and hard work to win great rewards.

Even for those who will never go chasing out to the frontier there's a great comfort in knowing it's *there*: that you could, if you chose, pull up stakes and try your hand at making a new life. For the warriors and dreamers among us a frontier is so vital that if there isn't a physical one, we'll create an internal problem and fight that.

I suppose that man's need for a frontier is a debatable proposition,

in that somebody might question it; but I doubt that many science fiction readers would dispute the point. To a very great extent this is what science fiction is all about.

Unfortunately, science hasn't been cooperating with us. First comes Special and General Relativity to say that we won't ever travel to the stars. Then come the space probes to rob us of our traditional solar system. What's left?

As I've said before, I firmly believe we'll overcome the speed-of-light barrier, and if we don't, we'll still find a way to leave the Solar System; but that may take quite a while, and suppose I'm wrong. Are there no frontiers left?

Venus was once a favorite. Hot and swampy, a younger sister of

Earth, with grey skies laden with thick clouds; primordial ooze, scattered thick forests burdened with heavy vines and hanging mosses; thick fungus that ate men alive, a world populated with strange animals, dragons and dinosaurs and swamp creatures resembling the beastie from the Black Lagoon. Venus was a world to challenge us.

Then the scientists took away our Venus, as they had taken away our Mars. For a time the extremely high temperatures of Venus gave some comfort to Velikovsky and his supporters, and thus argued for a more unstable and less orderly Solar System than we had imagined—we could take comfort in fright. In a world of cosmic catastrophes there is room aplenty for adventure and derring-do.

After all, Dr. V. had predicted that Venus would be very hot, possibly even still molten from her fiery birth from Jupiter; but, alas, even that is denied us. Pioneer looked down on Jupiter and found that he is not even solid. The Queen of Heaven does not resemble her mythological father, no, not in the least.

Velikovsky would have hydrocarbons (and carbo-hydrates) in the Venerian atmosphere, and he may well be right; but mostly there is carbon dioxide ( $CO_2$ ) in fearful amounts, diluted with sulfuric and hydroflouric acids. Here and there may lurk clouds of ice crystals and water vapor, but mostly there is a

poisonous and corrosive brew pressing down with 90 atmospheres on Aphrodite's face.

Venus does not seem an attractive place.

**W**HEN I WAS A BOY I read a "juvenile" novel so utterly forgettable that I recall neither plot nor title nor author nor characters. One incident in that book impressed itself in my mind.

The heroes had stranded themselves in the Arabian (or Moroccan or Tunisian or Saharan) desert, and were about to be engulfed by wild barbaric tribesmen on camels—when lo!, the tribesmen retreated in panic, driven away by the sight of a regiment of British Tommies in full uniform.

There were, of course, no British troops for hundreds of miles. The author made a point of explaining that this sort of mirage happens quite often in the desert. I remember looking for one many years later; it's true enough.

There are numerous stories of ghost cities in the Mediterranean. One can often be seen across the straits of Messina: a full city, with moving traffic, nestled onto the dry and barren hills. The illusion has been observed and commented on for at least three thousand years.

What happens is that changing air densities will affect light rays so that under the proper conditions the image is refracted over the horizon.

A British regiment marching in Aden is seen a hundred miles away. Ghostly images of cities form on barren shorelines.

This is rare on Earth. On Venus it's inevitable. The Venerian atmosphere is so thick that light is refracted through 90° and more. The whole planet is visible from any point on the surface. The explorer will seem to stand in the bottom of an enormous bowl, with cliffs towering high above him.

This doesn't have a lot to do with the subject of this column, but it fascinates me. Venus must be a confusing place, where one sees the back of one's own head spread about on the top of an enormous cliff. . .

**T**HE MIRAGES MIGHT BE worth seeing, but there's not a lot else to attract colonists or tourists. Carl Sagan, Cornell U's resident genius and expert on Venus, once said "Venus is very much like Hell," and a glance at Table One shows why.

It's not a very attractive place to live. In fact, a more useless planet is hard to imagine. What good is a lump of desert whose surface temperature is up there about the melting point of lead, whose atmosphere is too thick, with winds of fearful velocity and force blowing dust across craters and jumbled structures like the surface of the Moon?

Some writers have proposed that

since we can never visit Venus (and wouldn't want to if we could), we should make her the Solar System's garbage heap. Venus could become the repository for all the long-term radioactive wastes produced by nuclear power plants. It's cheaper to drop a load onto the surface of Venus than to send it into the Sun, and what other use do we have for Hell anyway?

Quite a lot, actually. Venus is very likely to become the first terraformed planet. In fact in a few hundred years there may be more people living on Venus than live on Earth right now.

The asteroids can be one frontier for the future, as I described a couple of issues ago; but they'll never be developed into a New World. That's reserved for Venus.

Not only can we terraform Venus, but we could probably get the job done in this century, using present-day technology. The whole cost is unlikely to be greater than a medium-sized war, and the pay-off is enormous: a whole New World, a frontier to absorb adventurers and the discontented. Few wars of conquest ever yielded a fraction of that.

Hardened veteran SF readers will have recognized the title of this column as coming from a 1955 ASTOUNDING novelette by Poul Anderson. His "The Big Rain" should rank with all the other successful predictions by SF writers: when the Big Rain comes, we can live on Venus.

The Venerian atmosphere consists mainly of carbon dioxide plus some other junk that we'd like to get rid of. The junk is water soluble, and will wash away when we get the rain to fall.

That thick CO<sub>2</sub> blanket is the cause of all Venus's troubles. Solar radiation comes in, a lot of it as visible light and hotter, into the ultraviolet. It penetrates into the atmosphere and is absorbed. Now Venus slowly rotates, until she faces the absolute black of outer space, a pretty chilling experience as anyone who's camped out in high mountains knows.

The absorbed radiation tries to go back out into space, but it has cooled off somewhat, from ultraviolet to infra-red. IR is absorbed nicely by carbon dioxide. The heat never gets back out, and up goes the Venerian temperature. This is called "the greenhouse effect" and works on Earth as well as out there. In fact, there are theorists who wonder if burning all those fossil fuels won't, in a couple of generations, loose so much CO<sub>2</sub> into our own atmosphere as to bring Earth's temperature up sharply. The result would be melting ice at the poles, and the drowning of most of our sea-coast cities.

Before we get too alarmed at that, though, there's something else to worry about: it seems that far from rising, the average temperature of the Earth is *falling*, and we may be due for a new ice age, complete

with glaciers in North America and like that, within the next hundred years. More on both subjects at another time; this month we're concerned with reducing the Venerian fever to manageable levels.

We need to break up that thick CO<sub>2</sub> layer around Venus. This will automatically liberate oxygen, a rather desirable (to us) side effect. It will also chop down the atmospheric pressure to something tolerable.

Breaking up CO<sub>2</sub> is a rather simple task. Plants do it all the time. We'll need a pretty rugged plant, since the atmospheric temperatures of Venus range from below freezing to live steam, but fortunately one of the most efficient CO<sub>2</sub> converters is also one of the most rugged.

In fact, it's generally thought that the blue-green algae were responsible for Earth keeping her cool and not getting covered with a thick CO<sub>2</sub> blanket like her sister.

The algae will need sunlight, water, and CO<sub>2</sub>. There's no question about finding those on Venus. The temperatures are all right, too, at least in the upper atmosphere where we'll seed the algae.

This isn't just theory. "Venus jar" tests have shown that blue-green algae thrive in the best reproduction of Venerian atmosphere we can make. They break down the CO<sub>2</sub> and give off oxygen at ever-increasing rates. In fact, to the algae, Venerian conditions are not Hell but Heaven.

**TABLE ONE:**  
**THE PHYSICAL PARAMETERS OF HELL**

	<b>EARTH</b>	<b>VENUS</b>
Diameter	7927 miles 12,756 km.	7700 miles 12,392 km.
Mass	$5.98 \times 10^{27}$ gm (1)	$4.9 \times 10^{27}$ gm (0.82)
Density	5.52	5.27
Distance from Sun	$1.49 \times 10^{13}$ cm = 1 AU	$1.08 \times 10^{13}$ cm = 0.7 AU
Length of Year	365.25 days	225 Earth days
Rotation Rate	23 hrs 56 min	243 Earth days (Retrograde)
Mean Solar Day	24 hours	118 Earth days
Mean Irradiance	1.97 cal/cm <sup>2</sup> /min	3.78 cal/cm <sup>2</sup> /min
Atmospheric Pressure	$14.7 \text{ lbs./in}^2 =$ 1 atmosphere	90 atmospheres
Mean Equatorial Temperature Range	0 to 50 ° C	– 20° C (Cloud tops) to 480°C (Surface)
Surface Gravity	$980.7 \text{ cm/sec}^2 =$ 1 g	$894 \text{ cm/sec}^2 =$ 0.9 g
Distance to Horizon	20 km.	38,000 km.

We have the algae, and we can build rockets to send them. About a hundred rockets should do the job. Say each rocket costs 100 million dollars, and the ten billion dollar price doesn't seem unreasonable. Say we're off by a factor of ten, and we've a hundred billion, less than wars cost; and out of *that* much money we should be able to get a couple of manned Venus-orbit laboratories as a bonus. It will be, after all, a once-in-evolutionary-lifetimes opportunity.

Once the algae are sprayed into the upper atmosphere, they happily eat up CO<sub>2</sub> and give off oxygen. They have no competition. Nothing eats them, and there's plenty of room for expansion, plenty to eat, and lots of sunlight.

Some calculations indicate that within a year of the initial infection the surface of Venus will be visible to Earth telescopes. Meanwhile the algae go on doing their thing. The atmosphere clears. Sunlight coming in begins to radiate back out. The atmospheric temperature falls, and lower levels are invaded by the algae.

There is about 100 inches of precipitable water in the Venerian atmosphere. This means that if it all fell as rain, it would cover the entire surface to a depth of 100 inches.

Compared to the miles of water covering most of the Earth this is not much; still, 100 inches is respectable. Mars has only 10 mic-

rons of precipitable water.

As the air above Venus cools, rain-drops will form and eventually it will rain, and rain, and rain. The first planet-wide storm probably won't ever get to the surface; the rain will evaporate long before that. But as it evaporates it cools still another layer of atmosphere, and down move the algae.

Repeat as needed. In no more than twenty years from Go, the Big Rain will strike the ground. Craters will become lakes. Depressions will become shallow seas. Rivers will begin carving channels.

And as Venus slowly turns, there may be snow on the night side: a water-table will develop. Deserts a billion years old will turn to mud.

At that point the surface will be tolerable to humans with protective equipment—the seeding can begin. Scientists will want to move very carefully, introducing only the *right* plants and insects, fearful lest an unbalanced ecology result. Opposed to this slow and careful approach will be the colonists who want the job over and done with.

Some will demand that we dump a little of everything we can think of onto Venus and let competition take its course; an ecology will result inevitably, although we may not be able to predict what it will be.

There will also be tailored organisms. Microbiologists are already to the stage of switching genes from one species to another,

and it shouldn't be long before this is done with higher plants and animals.

After all, Venus will have special conditions. That long rotation period means severe winters, like the Arctic tundra or worse. Much of Venus may resemble Siberia or the North Slopes of Alaska, which, if you haven't seen them, are second only to Antarctica as candidates for the most desolate spots on Earth. On the other hand, Venus will still have a thick atmosphere, and she's closer to the Sun. We don't know what the final temperature will be, or how much heat-pumping the atmosphere can do.

It may not be the most pleasant world imaginable. Some writers have speculated that Venerian colonists will be nomads, staying on the move to live in perpetual sunshine. Others have described a world of paired cities connected by rails: as sunset approaches, the inhabitants escape the winter night by travel to their city's twin at the antipodes, somewhat as the Martian colonists migrated yearly in **RED PLANET**.

Much of this scheme was described by Carl Sagan in a 1961 article in **SCIENCE**. Poul Anderson amplified it in "To Build A World", **GALAXY**, 1964 (June). In Poul's story there was fierce competition for the better parts of Venus, resulting in a social system composed of clans engaged in innumerable limited wars. It's a

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reasonable projection; the first settlements will be small, probably dominated by one man, and intermarriage may well result in a clan-structured social system.

We haven't yet mapped the face of Venus, so we don't know where or how large the seas will be. We don't know a lot (heck, we know almost nothing) about the substructure of Venerian soil. How much water will be absorbed? At what level will a water table form?

For that matter, will it be enough to introduce our algae to get everything started, or will we also have to provide fertilizers: phosphorus, trace elements, that sort of thing?

Our massive tampering with atmospheric energies and surface temperatures may trigger tectonic activities. Venus may erupt in a number of places, and spew out

even more CO<sub>2</sub>, water vapor, methane, and such like.

Project Morning Star won't be all smooth sailing. There will undoubtedly be unforeseen problems. For all that, the terraforming of Venus is no pipe dream. We could do it. We can do it right now, if we want to pay for it. We can create a new frontier, larger than the New World ever was.

In other words, there's room here for more stories than we had about the "old" Venus with her swamps and dinosaurs. True, we won't have any intelligent Venerians to contend with. It's unlikely that there's any life on Venus at all.

Unlikely but not impossible. There are, after all, Earth-like conditions of temperature and pressure in the Venerian atmosphere, and this is about the only planet—other than Earth—in the Solar System that can make that statement. Moreover, it may be that there have always been spots with Terrestrial conditions on Venus.

True, life isn't likely to have evolved under present Venerian conditions, but some planetary scientists now believe that Venus was once much more like Earth. Then, for reasons not completely understood, the planet began to heat up and dry out.

If by that time life had evolved, it may have taken to the air, and be hanging around there yet.

It isn't likely, of course. If Venus had really active bugs they should

be busily tearing off the CO<sub>2</sub> cover that keeps Venus hot, and we wouldn't need to infect the Queen of Heaven with blue-green algae.

If there are any native Venerian bugs, Project Morning Star will no doubt doom them to extinction.

We have the technology to make Venus a place where we can live. Have we the right to do it? *Should* we, granted that we can?

After all, this is "pollution" on a grand scale. True it's not pollution to our way of thinking; but what's good clean air to us is certainly unnatural to Venus.

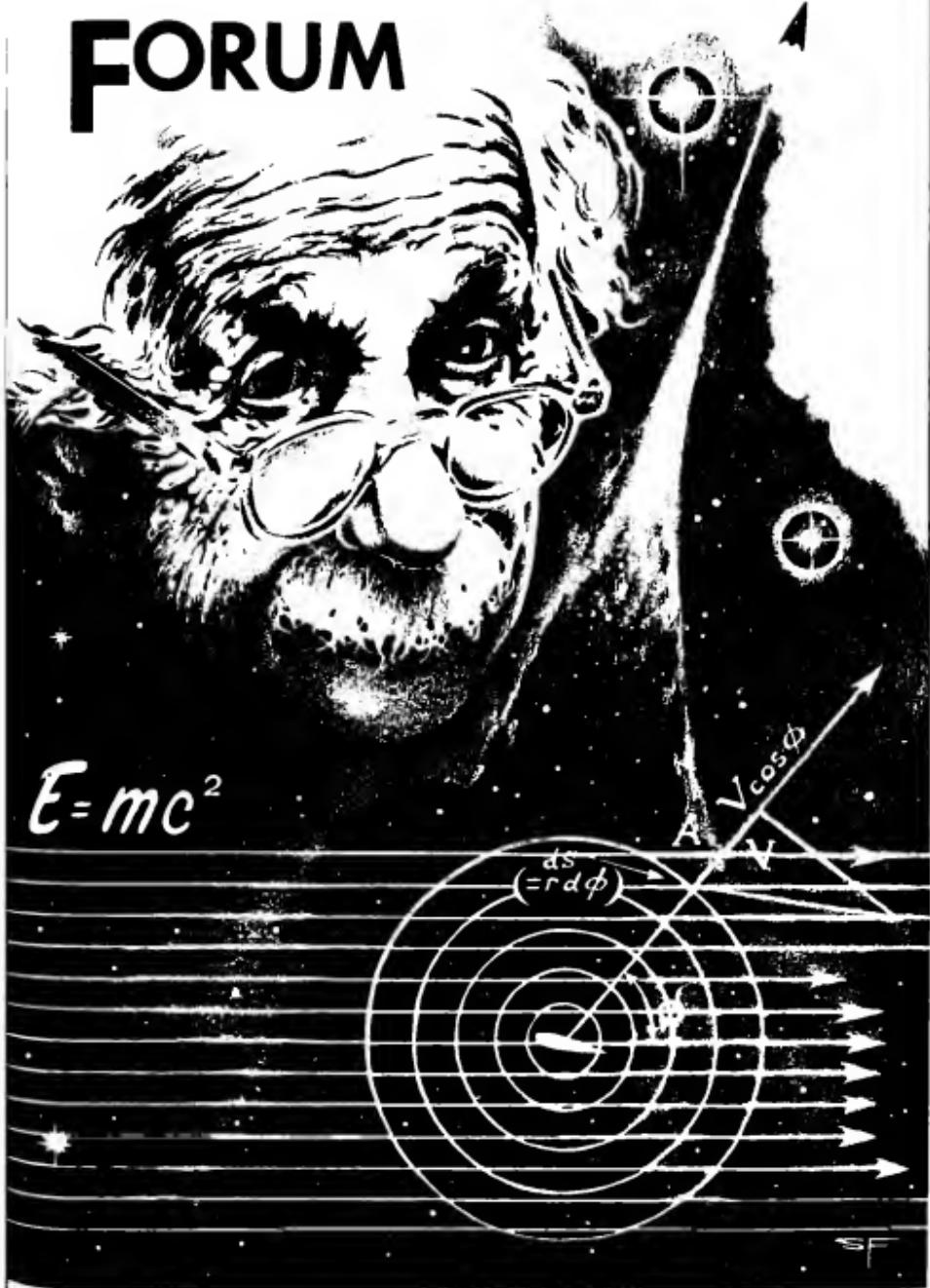
I suppose that we can and probably will debate this question for a long time to come, and when the debate is finished I suspect that no one will have changed opinion by one jot. Those who feel it monstrous to go about interfering with nature, and see the terraforming of Venus as blasphemy (they will probably use the term 'obscene') are not likely to change their minds.

Those who see Project Morning Star as the most glorious opportunity that has yet faced man are unlikely to be concerned about mindless Venerian gas-bags or other hypothetical Venerian critters (beyond building them a pre-Morning Star zoo).

Meanwhile, one thing is certain: it is possible that within my lifetime I could dateline this column "Venusberg". We can do it, and some of you could live there.

Just after that Big Rain. ★

# FORUM



# OUR MANY ROADS TO THE STARS

## POUL ANDERSON

HERE ARE COUNTLESS varieties of science fiction these days, and I would be the last to want any of them restricted in any way. Nevertheless, what first drew me to this literature and, after more years than I like to add up, still holds me, is its dealing with the marvels of the universe. To look aloft at the stars on a clear night and think that someday, somehow we might actually get out among them, rouses the thrill anew, and I become young again. After all, we made it to the Moon, didn't we? Meanwhile, only science fiction of the old and truly kind takes the imagination forth on that journey. Therefore I put up with its frequent flaws; and so does many another dreamer.

But are we mere dreamers, telling ourselves stories of voyages yonder as our ancestors told of voyages to Avalon and Cíbola? Those never existed, and the stars do; but, realistically, does any possibility of reaching them?

The case against interstellar travel traditionally begins with the sheer distances. While Pioneer 10 and 11, the Jupiter flybys, will leave the Solar System, they won't get as far

as Alpha Centauri, the nearest neighbor sun, for more than 40,000 years. (They aren't actually bound in that direction.) At five times their speed, or 100 miles per second, which we are nowhere close to reaching today, the trip would take longer than recorded history goes back. And the average separation of stars in this galactic vicinity is twice as great.

If we could go very much faster—

At almost the speed of light, we'd reach Alpha Centauri in about four and a third years. But as most of you know, we who were faring would experience a shorter journey. Both the theory of relativity and experimental physics show that time passes "faster" for a fast-moving object. The closer to the speed of light, the greater the difference, until at that velocity itself, a spaceman would make the trip in no time at all. However, the girl he left behind him would measure his transit as taking the same number of years as a light ray does; and he'd take equally long in coming back to her.

In reality, the velocity of light *in vacuo*, usually symbolized by  $c$ , cannot be attained by any material body. From a physical viewpoint, the reason lies in Einstein's famous equation  $E = mc^2$ . Mass and energy are equivalent. The faster a body moves, the more energy it has, and hence the more mass. This rises steeply as velocity gets close to  $c$ , and at that speed would be

come infinite, an obvious impossibility.

Mass increases by the same factor as time (and length) shrink. An appendix to this essay defines the terms more precisely than here. A table there gives some representative values of the factor for different values of velocity,  $v$ , compared to  $c$ . At  $v = 0.7 c$ , that is, at a speed of 70% light's, time aboard ship equals distance covered in light-years. Thus, a journey of 10 light-years at 0.7  $c$  would occupy 10 years of the crew's lives, although to people on Earth or on the target planet, it would take about 14.

There's a catch here. We have quietly been supposing that the whole voyage is made at exactly this rate. In practice, the ship would have to get up to speed first, and brake as it neared the goal. Both these maneuvers take time; and most of this time is spent at low velocities where the relativistic effects aren't noticeable.

Let's imagine that we accelerate at one gravity, increasing our speed by 32 feet per second each second and thus providing ourselves with a comfortable Earth-normal weight inboard. It will take us approximately a year (a shade less) to come near  $c$ , during which period we will have covered almost half a light-year, and during most of which period our time rate won't be significantly different from that of the outside cosmos. In fact, not until the eleventh month would the factor

get as low as 0.5, though from then on it would start a really steepening nosedive. Similar considerations apply at journey's end, while we slow down. Therefore a trip under these conditions would never take less than two years as far as we are concerned; if the distance covered is 10 light-years, the time required is 11 years as far as the girl (or boy) friend left behind is concerned.

At the "equalizing"  $v$  of 0.7  $c$ , these figures become 10.7 years for the crew and 14.4 years for the stay-at-homes. This illustrates the dramatic gains that the former, if not the latter, can make by pushing  $c$  quite closely. But let's stay with that value of 0.7  $c$  for the time being, since it happens to be the one chosen by Bernard Oliver for his argument against the feasibility of star travel.

Now Dr. Oliver, vice president for research and development at Hewlett-Packard, is definitely not unimaginative, nor hostile to the idea as such. Rather, he is intensely interested in contacting extraterrestrial intelligence, and was the guiding genius of Project Cyclops, which explored the means of doing so by radio. The design which his group came up with could, if built, detect anybody who's using radio energy like us today within 100 light-years. Or it could receive beacon signals of reasonable strength within 1000 light-years: a sphere which encloses a million suns akin to Sol and half a billion

which are different.

Still, he does not fudge the facts. Making the most favorable assumption, a matter-antimatter annihilation system which expels radiation itself, he has calculated the minimum requirement for a round trip with a stopover at the destination star, at a peak speed of  $0.7c$ . Assuming 1000 tons of ship plus payload, which is certainly modest, he found that it must convert some 33,000 tons of fuel into energy—sufficient to supply the United States, at present levels of use, for half a million years. On first starting off from orbit, the ship would spend 10 times the power that the Sun gives to our entire Earth. Shielding requirements alone, against stray gamma rays, make this an absurdity, not to speak of a thousand square miles of radiating surface to cool the vessel if as little as one one-millionth of the energy reaches it in the form of waste heat.

Though we can reduce these figures a good deal if we assume it can refuel at the other end for its return home, the scheme looks impractical regardless. Moreover, Dr. Oliver, no doubt deliberately, has not mentioned that space is not empty. Between local stars, it contains about one hydrogen atom per cubic centimeter, plus smaller amounts of other materials. This is a harder vacuum than any we can achieve artificially. But a vessel ramming through it at  $0.7c$  would release X-radiation at the rate of

some 50 million roentgen units per hour. It takes less than 1000 to kill a human being. No material shielding could protect the crew for long, if at all.

Not every scientist is this pessimistic about the rocket to the stars, that is, a craft which carries its own energy source and reaction mass. Some hope for smaller, unmanned probes, perhaps moving at considerably lower speeds. But given the mass required for their life support and equipment, men who went by such a vehicle would have to reckon on voyages lasting generations or centuries.

This is not impossible, of course. Maybe they could pass the time in suspended animation. Naturally radioactive atoms in the body set an upper limit to that, since they destroy tissue which would then not be replaced. But Carl Sagan, astronomer and exobiologist at Cornell University, estimates that a spore can survive up to a million years. This suggests to me that humans should be good for anyway several thousand.

Or maybe, in a huge ship with a complete ecology, an expedition could beget and raise children to carry their mission on. Calculations by Gerald K. O'Neill, professor of physics at Harvard, strongly indicate that this is quite feasible. His work has actually dealt with the possibility of establishing permanent, self-sustaining colonies in orbit, pleasanter to live in than most

of Earth and capable of producing more worldlets like themselves from extraterrestrial resources. He concludes that we can start on it *now*, with existing technology and at startlingly low cost, and have the first operational by the late 1980's. Not long afterward, somebody could put a motor on one of these.

The hardened science fiction reader may think such ideas are old hat. And so they are, in fiction. But to me the fact is infinitely more exciting than any story—that the accomplishment can actually be made, that sober studies by reputable professionals are confirming the dream.

True, I'd prefer to believe that men and women can get out there faster, more easily, so that the people who sent them off will still be alive when word arrives of what they have discovered. Is this wishful thinking? We've written off the rocket as a means of ultra-fast travel, but may there be other ways?

Yes, probably there are. Even within the framework of conventional physics, where you can never surpass  $c$ , we already have more than one well-reasoned proposal. If not yet as detailed and mathematical as Oberth's keystone work on interplanetary travel of 1929, the best of them seem equivalent to Tsiolkovsky's cornerstone work of 1911. If the time scale is the same for future as for past developments, then the first manned Alpha Centauri expedition should leave about the year

2010. . . .

That's counting from R. W. Bussard's original paper on the interstellar ramjet, which appeared in 1960. Chances are that a flat historical parallel is silly. But the engineering ideas positively are not. They make a great deal of sense.

Since the ramjet has been in a fair number of stories already, I'll describe the principle rather briefly. We've seen that at high speeds, a vessel must somehow protect its crew from the atoms and ions in space. Lead or other material shielding is out of the question. Hopelessly too much would be required, it would give off secondary radiation of its own, and ablation would wear it down, incidentally producing a lot of heat, less readily dissipated in space than in an atmosphere. Since the gas must be controlled anyway, why not put it to work?

Once the ship has reached a speed which turns out to be reasonable for a thermonuclear rocket—and we're on the verge of that technology today—a scoop can collect the interstellar gas and funnel it into a reaction chamber. There, chosen parts can be fusion-burned for energy to throw the rest out backward, thus propelling the vessel forward. Ramjet aircraft use the same principle, except that they must supply fuel to combine with the oxygen they collect. The ramjet starcraft takes everything it needs from its surroundings. Living off

the country, it faces none of the mass-ratio problems of a rocket, and might be able to crowd  $c$  very closely.

Needless to say, even at the present stage of pure theory, things aren't that simple. For openers, how large an apparatus do we need? For a ship-plus-payload mass of 1000 tons, accelerating at one gravity and using proton-proton fusion for power, Bussard and Sagan have both calculated a scoop radius of 2000 kilometers. Now we have no idea as yet how to make that particular reaction go. We are near the point of fusing deuterons, or deuterons and tritons (hydrogen nuclei with one and two neutrons respectively), to get a net energy release. But these isotopes are far less common than ordinary hydrogen, and thus would require correspondingly larger intakes. Obviously, we can't use collectors made of metal.

But then, we need nonmaterial shielding anyway. Electromagnetic fields exert force on charged particles. A steady laser barrage emitted by the ship can ionize all neutral atoms within a safety zone, and so make them controllable, as well as vaporizing rare bits of dust and gravel which would otherwise be a hazard. (I suspect, myself, that this won't be necessary. Neutral atoms have electrical asymmetries which offer a possible grip to the force-fields of a more advanced technology than ours. I also feel sure we will master the proton-proton reac-

tion, and eventually matter-antimatter annihilation. But for now, let's play close to our vests.) A force-field scoop, which being massless can be of enormous size, will catch these ions, funnel them down paths which are well clear of the crew section and into a fusion chamber, cause the chosen nuclei to burn, and expel everything aft to drive the vessel forward, faster and faster.

To generate such fields, A. J. Fennelly of Yeshiva University and G. L. Matloff of the Polytechnic Institute of New York propose a copper cylinder coated with a superconducting layer of niobium-tin alloy. The size is not excessive, 400 meters in length and 200 in diameter. As for braking, they suggest a drogue made of boron, for its high melting point, ten kilometers across. This would necessarily work rather slowly. But then, these authors are cautious in their assumptions; for instance, they derive a peak velocity of just  $0.12 c$ . The system could reach Alpha Centauri in about 53 years, Tau Ceti in 115.

By adding wings, however, they approximately halve these travel times. The wings are two great superconducting batteries, each a kilometer square. Cutting the lines of the galactic magnetic field, they generate voltages which can be tapped for exhaust acceleration, for magnetic bottle containers for the power reaction, and for inboard electricity. With thrust shut off,

they act as auxiliary brakes, much shortening the deceleration period. When power is drawn at different rates on either side, they provide maneuverability—majestically slow, but sufficient—almost as if they were huge oars.

All in all, it appears that a vessel of this general type can bring explorers to the nearest stars while they are still young enough to carry out the exploration—and the preliminary colonization?—themselves. Civilization at home will start receiving a flood of beamed information, fascinating, no doubt often revolutionary in unforeseeable ways, within a few years of their arrival. Given only a slight lengthening of human life expectancy, they might well spend a generation out yonder and get home alive, still hale. Certainly their children can.

Robert L. Forward, a leading physicist at Hughes Research Laboratories, has also interested himself in the use of the galactic magnetic field. As he points out, the ion density in interstellar space is so low that a probe could easily maintain a substantial voltage across itself. Properly adjusted, the interaction forces produced by this will allow mid-course corrections and terminal maneuvers at small extra energy cost. Thus we could investigate more than one star with a single probe, and eventually bring it home again.

Indeed, the price of research in deep space is rather small. Even the

cost of manned vessels is estimated by several careful thinkers as no more than ten billion dollars each—starting with today's technology. That's about 50 dollars per American, much less than we spend every year on cigarettes and booze, enormously less than goes for wars, bureaucrats, subsidies to inefficient businesses, or the servicing of the national debt. For mankind as a whole, a starship would run about \$2.50 per head. The benefits it would return in the way of knowledge, and thus of improved capability, are immeasurably great.

But to continue with those manned craft. Mention of using interstellar magnetism for maneuvering raises the thought of using it for propulsion. That is, by employing electromagnetic forces which interact with that field, a ship could ideally accelerate itself without having to expel any mass backward. This would represent a huge saving over what the rocket demands.

The trouble is, the galactic field is very weak, and no doubt very variable from region to region. Though it can be valuable in ways that we have seen, there appears to be no hope of using it for a powerful drive.

Might we invent other devices? For instance, if we could somehow establish a negative gravity force, this might let our ship react against the mass of the universe as a whole, and thus need no jets. Unfortunately, nobody today knows how to do

any such thing, and most physicists take for granted it's impossible. Not all agree: because antigravity-type forces do occur in relativity theory, under special conditions.

Physics does offer one way of reaching extremely high speeds free, the Einsteinian catapult. Later I shall have more to say about the weird things that happen when large, ultra-dense masses spin very fast. But among these is their generation of a force different from Newtonian gravity, which has a mighty accelerating effect of its own. Two neutron stars, orbiting nearly in contact, could kick almost to light velocity a ship which approached them on the right orbit.

Alas, no such pair seems to exist anywhere near the Solar System. Besides, we'd presumably want something similar in the neighborhood of our destination, with exactly the characteristics necessary to slow us down. The technique looks rather implausible. What is likely, though, is that closer study of phenomena like these may give us clues to the method of constructing a field drive.

Yet do we really need it? Won't the Bussard ramjet serve? Since it picks up everything it requires as it goes, why can't it keep on accelerating indefinitely, until it comes as close to  $c$  as the captain desires? The Fennelly-Matloff vehicle is not intended to do this. But why can't a more advanced model?

Quite possibly it can!

Before taking us off on such a voyage, maybe I'd better answer a question or two. If the ship, accelerating at one gravity, is near  $c$  in a year, and if  $c$  is the ultimate speed which nature allows, how can the ship keep on accelerating just as hard, for just as long as the flight plan says?

The reason lies in the relativistic contraction of space and time, when these are measured by a fast-moving observer. Suppose we, at rest with respect to the stars, track a vessel for 10 light-years at its steady speed of  $0.9 c$ . To us, the passage takes 11 years. To the crew, it takes 4.4 years: because the distance crossed is proportionately less. They never experience faster-than-light travel either. What they do experience, when they turn their instruments outward, is a cosmos strangely flattened in the direction of their motion, where the stars (and their unseen friends at home) age strangely fast.

The nearer they come to  $c$ , the more rapidly these effects increase. Thus as they speed up, they perceive themselves as accelerating at a steady rate through a constantly shrinking universe. Observers on a planet would perceive them as accelerating at an ever lower rate through an unchanged universe. At last, perhaps, millions of light-years might be traversed and millions of years pass by outside while a man inboard draws a breath.

By the way, those authors are

wrong who have described the phenomenon in terms of "subjective" versus "objective" time. One set of measurements is as valid as another.

The "twin paradox" does not arise. This old chestnut says, "Look, suppose we're twins, and you stay home while I go traveling at high speed. Now I could equally well claim I'm stationary and you're in motion—therefore that you're the one flattened out and living at a slower rate, not me. So what happens when we get back together again? How can each of us be younger than his twin?"

It overlooks the fact that the traveler does come home. The situation would indeed be symmetrical if the spaceman moved forever at a fixed velocity. But then he and his brother, by definition, never would meet to compare notes. His accelerations (which include slowdowns and changes of course) take the whole problem out of special and into general relativity. Against the background of the stars, the traveler has moved in a variable fashion; forces have acted on him.

Long before time and space measurements aboard ship differ bizarrely much from those on Earth, navigational problems will arise. They are the result of two factors, aberration and Doppler effect.

Aberration is the apparent displacement of an object in the visual field of a moving observer. It results from combining his velocity

with the velocity of light. (Analogously, if we are out in the rain and, standing still, feel it falling straight down, we will feel it hitting us at a slant when we start walking. The change in angle will be larger if we run.) At the comparatively small orbital speed of Earth, sensitive instruments can detect the aberration of the stars. At speeds close to  $c$ , it will be huge. Stars will seem to crawl across the sky as we accelerate, bunching in its forward half and thinning out aft.

Doppler effect, perhaps more widely familiar, is the shift in observed wavelength from an emitting object, when the observer's velocity changes. If we move away from a star, we see its light reddened; if we move toward a star, we see its light turned more blue. Again, these changes become extremely marked as we approach  $c$ .

Eventually our relativistic astronaut sees most of the stars gathered in a ring ahead of him, though a few sparsely strewn individuals remain visible elsewhere. The ring itself, which Frederik Pohl has dubbed the "starbow," centers on a circle which is mainly dark, because nearly all light from there has been blue-shifted out of the frequencies we can see. The leading or inner edge of the ring is bluish white, its trailing or outer edge reddish; in between is a gradation of colors, akin to what we normally observe. Fred Hollander, a chemist at Brookhaven National Lab-

oratories, has calculated the starbow's exact appearance for different  $v$ . It gets narrower and moves farther forward, the bull's eye dead ahead gets smaller and blacker, the faster we go—until, for instance, at  $0.9999 c$  we perceive a starbow about ten degrees of arc in width, centered on a totally black circle of about the same diameter, and little or nothing shows anywhere else in the sky.

At that speed,  $0.9999 c$ , we'd cross 100 light-years in 20 months of our personal lifetimes. So it's worth trying for; but we'll have to figure out some means of knowing where we are! Though difficult, the problem does not look unsolvable in principle.

It may become so beyond a certain velocity. If we travel under acceleration the whole way, speeding up continuously to the half-way point, thereafter braking at the same rate until we reach our goal: then over considerable distances we get truly staggering relativity factors. The longer a voyage, the less difference it makes to us precisely how long it is.

Thus, Dr. Sagan points out that explorers faring in this wise at one gravity will reach the nearer stars within a few years, Earth time, and slightly less, crew time. But they will cross the approximately 650 light-years to Deneb in 12 or 13 years of their own lifespans; the 30,000 light-years to the center of our galaxy in 21 ship years; the two

million light-years to the Andromeda galaxy in 29 ship years; or the 10 million light-years to the Virgo cluster of galaxies in 31 ship years. If they can stand higher accelerations, or have some way to counteract the drag on their bodies, they can cross these gulfs in less of their own time; the mathematical formula governing this is in the appendix.

But will the starbow become too thin and dim for navigation? Or will they encounter some other practical limit? For instance, when matter is accelerated, it radiates energy in the form of gravity waves. The larger the mass, the stronger this radiation; and of course the mass of our spaceship will be increasing by leaps and bounds and pole-vaults. Eventually it may reach a condition where it is radiating away as much energy as it can take in, and thus be unable to go any faster.

However, the real practical limit is likelier to arise from the fact that we have enough stars near home to keep us interested for millennia to come. Colonies planted on worlds around some of these can, in due course, serve as nuclei for human expansion ever further into the universe.

Because many atoms swept through its force-fields are bound to give off light, a ramjet under weigh must be an awesome spectacle. At a safe distance, probably the hull where the crew lives is too small for the naked eye. Instead, against

the constellations one sees a translucent shell of multi-colored glow, broad in front, tapering aft to a fiery point where the nuclear reaction is going on. (Since this must be contained by force-fields anyway, there is no obvious reason for the fusion chamber to be a metal room.) Thence the exhaust streams backward, at first invisible or nearly so, where its particles are closely controlled, but becoming brilliant further off as they begin to collide, until finally a nebula-like chaos fades away into the spatial night.

It's not only premature, it's pointless to worry about limitations. Conventional physics appears to tell us that, although nature has placed an eternal bound on the speed of our traveling, the stars can still be ours. . . if we really want them.

Yet we would like to reach them more swiftly, with less effort. Have we any realistic chance whatsoever of finding a way around the light-velocity barrier?

Until quite recently, every sensible physicist would have replied with a resounding "No." Most continue to do so. They point to a vast mass of experimental data; for instance, if subatomic particles did not precisely obey Einsteinian laws, our big accelerators wouldn't work. The conservatives ask where there is the slightest empirical evidence for phenomena which don't fit into the basic scheme of relativity. And they maintain that, if ever we did send anything faster than light, it



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E.B.W.

would violate causality.

I don't buy that last argument, myself. It seems to me that, mathematically and logically, it presupposes part of what it sets out to prove. But this gets a bit too technical for the present essay, especially since many highly intelligent persons disagree with me. Those whom I mentioned are not conservatives in the sense of having stick-in-the-mud minds. They are among the very people whose genius and imagination make science the supremely exciting, creative endeavor which it is these days.

Nevertheless we do have a minority of equally qualified pioneers who have lately been advancing new suggestions.

I suppose the best known idea comes from Gerald Feinberg, professor of physics at Columbia University. He has noted that the Einsteinian equations do not actually forbid material particles which move faster than light—if these have a mass that can be described by an imaginary number (that is, an ordinary number multiplied by the square root of minus one. Imaginary quantities are common, e.g., in the theory of electromagnetism). Such "tachyons," as he calls them, would travel faster and faster the less energy they have; it would take infinite energy to slow them down to  $c$ , which is thus a barrier for them too.

Will it forever separate us, who are composed of "tardyons," from

the tachyon part of the cosmos? Perhaps—but not totally. It is meaningless to speak of anything which we cannot, in principle, detect if it exists. If tachyons do, there must be some way by which we can find experimental evidence for them, no matter how indirect. This implies some kind of interaction (via photons?) with tardyons. But interaction, in turn, implies a possibility of modulation. That is, if they can affect us, we can affect them.

And . . . in principle, if you can modulate, you can do anything. Maybe it won't ever be feasible to use tachyons to beam a man across space; but might we, for instance, use them to communicate faster than light?

Needless to say, first we have to catch them, i.e. show that they exist. This has not yet been done, and maybe it never can be done because in fact there aren't any. Still, one dares hope. A very few suggestive data are beginning to come out of certain laboratories—

Besides, we have other places to look. Hyperspace turns out to be more than a hoary science fiction catchphrase. Geometrodynamics now allows a transit from point to point, without crossing the space between, via a warp going "outside" that space—often called a wormhole. Most wormholes are exceedingly small, of subatomic dimensions; and a trip through one is no faster than a trip through normal space. Nevertheless, the idea opens

up a whole new field of research, which may yield startling discoveries.

Black holes have been much in the news, and in science fiction, these past several years. They are masses so dense, with gravity fields so strong, that light itself cannot escape. Theory has predicted for more than 40 years that all stars above a particular size must eventually collapse into the black hole state. Today astronomers think they have located some, as in Cygnus X-1. And we see hypotheses about black holes of less than stellar mass, which we might be able to find floating in space and utilize.

For our purposes here, the most interesting trait of a black hole is its apparent violation of a whole series of conservation laws so fundamental to physics that they are well-nigh Holy Writ. Thus many an issue, not long ago considered thoroughly settled, is again up for grabs. The possibility of entering a black hole and coming out "instantly" at the far end of a space warp is being seriously discussed. Granted, astronauts probably couldn't survive a close approach to such an object. But knowledge of these space warp phenomena and their laws, if they do occur in reality, might well enable us to build machines which—because they don't employ velocity—can circumvent the *c* barrier.

Black holes aren't the sole things which play curious tricks on space

## SCIENCE FICTION REVIEW



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and time. An ultra-dense toroid, spinning very rapidly in smoke ring fashion, should theoretically create what is called a Kerr metric space warp, opening a way to hyperspace.

The most breathtaking recent development of relativity that I know of is by F. J. Tipler, a physicist at the University of Maryland. According to his calculations, not just near-instantaneous crossings of space should be possible, but time travel should be! A cylinder of ultra-dense matter, rotating extremely fast (velocity at the circumference greater than  $0.5 c$ ) produces a region of multiply periodic space-time. A particle entering this can, depending on its exact track, reach any event in the universe, past or future.

The work was accepted for publication in *Physical Review*, which is about as respectable as science can get. Whether it will survive criticism remains to be seen. But if nothing else, it has probably knocked the foundation out from under the causality argument against faster-than-light travel: by forcing us to rethink our whole concept of causality.

The foregoing ideas lie within the realm of accepted physics, or at least on its debatable borders. Dr. Forward has listed several others which are beyond the frontier . . . but only barely, and only to date. Closer study could show, in our near future, that one or more of them refer to something real.

For instance, we don't know what inertia "is." It seems to be a basic property of matter; but why? Could it be an inductive effect of gravitation, as Mach's Principle suggests? If so, could we find ways to modify it, and would we then be held back by the increase of mass with velocity?

Could we discover, or produce, negative mass? This would gravitationally repel the usual positive kind. Two equal masses, positive and negative, linked together, would make each other accelerate in a particular direction without any change in momentum or energy. Could they therefore transcend  $c$ ?

A solution of Einstein's field equations in five dimensions for charged particles gives an electron velocity of a billion trillion  $c$ . What then of a spaceship, if the continuum should turn out to have five rather than four dimensions?

Conventional physics limits the speed of mass-energy. But information is neither; from a physical standpoint, it represents negative entropy. So can information outrun light, perhaps without requiring any medium for its transmission? If you can send information, in principle you can send anything.

Magnificent and invaluable though the structure of relativity is, does it hold the entire truth? There are certain contradictions in its basic assumptions which have never been resolved and perhaps never can be. Or relativity could be just a special

case, applying only to local conditions.

Once we are well and truly out into space, we may find the signs of a structure immensely more ample.

These speculations have taken us quite far beyond known science.

But they help to show us how little known that science really is, even the parts which have long felt comfortably, or confiningly, familiar. We can almost certainly reach the stars. Very possibly, we can reach them easily.

If we have the will. ★

### Appendix

Readers who shudder at sight of an equation can skip this part, though they may like to see the promised table. For different velocities, it gives the values of the factors "tau" and "gamma." These are simply the inverses of each other. A little explanation of them may be in order.

Suppose we have two observers, A and B, who have *constant* velocities. We can consider either one as being stationary, the other as moving at velocity  $v$ . A will measure the length of a yardstick B carries, in the direction of motion, and the interval between two readings of a clock B carries, as if these quantities were multiplied by tau. For example, if  $v$  is  $0.9 c$ , then B's yardstick is merely 0.44 times as long in A's eyes as if B were motionless; and an hour, registered on B's clock, corresponds to merely 0.44 hour on A's. On the other hand, mass is multiplied by gamma. That is, when B moves at  $0.9 c$ , his mass according to A is 2.26 times what it was when B was motionless.

B, in turn, observes himself as

normal, but A and A's environs as having suffered exactly the same changes. Both observers are right.

$v$	Tau	Gamma
0.1 c	0.995	1.005
0.5 c	0.87	1.15
0.7 c	0.72	1.39
0.9 c	0.44	2.26
0.99 c	0.14	7.10
0.9999 c	0.017	58.6

The formula for tau is  $(1 - v^2/c^2)^{1/2}$  where the exponent " $\frac{1}{2}$ " indicates a square root. Gamma equals one divided by tau, or  $(1 - v^2/c^2)^{-1/2}$ .

As for relativistic acceleration, if this has a constant value  $a$  up to midpoint, then a negative (braking) value  $-a$  to destination, the time to cover a distance  $S$  equals  $(2c/a) \operatorname{arc} \cosh (1 - aS/2c^2)$ . For long distances, this reduces to  $(2c/a) \operatorname{ln} (aS/c^2)$  where " $\operatorname{ln}$ " means "natural logarithm." The maximum velocity, reached at midpoint, is  $c[1 - (1 + aS/2c^2)^{-2}]^{1/2}$ .

# INFERNO



## Part II of III

1 Harry Hiven  
&  
Jerry Pournelle



### WHAT HAS GONE BEFORE

*The place seems to be a mockup of Dante's Inferno: a great funnel lined with circular ledges. I was on the top and outer level, the Vestibule, when Benito got me out of some kind of sensory deprivation environment. Since then we've crossed several of the ledges, and they do match my somewhat fuzzy memory of Dante's book. I wish I could remember more. I know it got progressively worse going down... fire, demons, boiling blood... down there where Benito is trying to lead me.*

*Benito says we've died and gone to Hell. He's convinced that Dante Alighieri saw the real Hell, and mapped it. He's following the map, down to the bottom of the funnel and out.*

*The fat man has some valuable talents, but he's nuts. Even if this was Dante's copyrighted Hell, they wouldn't let us out at the bottom. Dante was on a divinely ordained mission, and his guide could call on angels! I can't believe in Dante's ridiculous hole-through-the-Earth Hell. So where am I?*

*Item: I remember dying. The fans got me drunk at a World Science Fiction Convention. I made a silly bet: that I could sit on a window sill eight floors up and drain a fifth of rum without falling out. I lost.*

*Item: I've seen people who are undeniably dead. The Greeks wearing togas and famous names, or armor and famous names, could be robots. But I knew Jan Petri, and I attended his funeral. He's here in the Circle of Gluttons!*

*So try this. After I hit the concrete the fans got up a fund to freeze me. I waited it out as a cryogenic corpse. A lot of time must have passed before the medics learned enough to repair the damage and thaw me.*

*By then someone had built this tremendous funnel. Most of the people I've seen could be corpsicles revived for profit by the Builders. It's a Disneyland for masochists and sadists, with the sadists as devils and the masochists scattered among the revived dead, and evil miracles to entertain them.*

*Benito could be one of the paying customers. He won't say what level he comes from. He seems to accept everything: the massless windtossed victims on the second level, the strange wars on the fourth, the dirty frozen slush that holds Jan Petri, the filthy swamp and the homicidal maniacs in it and the quiet people moored under the waters...*

*Could the place be an insane asylum where futuristic mental patients act out their delusions? I've seen enough crazies. But the sadomasochistic Infernalook looks more likely.*

*I tried to get out over the rim wall. It receded like a demonstration of Xeno's paradox: some kind of space warp. The Builders are hideously powerful. I don't want to fight them.*

*I only want out.*

*And I've found a way.*

*Benito managed to con the bureaucrats out of a couple of stacks of togas, for fabric. There's wood in the swamp, and thermals above the red hot wall below. We're going to fly out, over the rim wall.*

*They can't keep a hard science fiction writer in hell!*

## XII

**"T**HINGS ARE DEFINITELY looking up for Allen Carpentier."

"I beg your pardon?" Benito was looking out at the marsh, at decaying trees embedded in fog.

"We've got a quiet place to work, I've made some flint tools, and there's everything we need for the glider. What more could we want?"

Benito sighed, and I got back to work. The first job was to find a place to loft the glider. We were on a little area of high ground, no more than thirty yards square and nestled up against the base of the cliff. The bad-tempered character was between us and everyone else. He wouldn't let anyone else past, and he wasn't about to bother us. I could just see him through the mist.

First things first. I used a log to flatten out an area larger than the glider would be, then cut a long springy sapling for a ruler. After a while I had a whole collection of saplings of various lengths and thicknesses.

You draw the rough outlines, then spring the batten—in this case one of the saplings—across the important points. That makes a smooth fair curve. It was the way the Wright Brothers designed airplanes, and it was the way the Douglas Gooney Bird was designed. It wasn't until World War II, long after the age of flight was underway, that airplanes were designed on drafting tables. Before that they were done on the loft floors, the same way that boats were designed for centuries.

I don't know how long it took me to get it right. I wasn't in any hurry, and Benito never tried to rush me. After a while he even developed some enthusiasm.

Did you ever try to set up ribs and make them keep their shape by tying them with vines? When the ribs are whatever you can cut off swamp willows? As a lesson in patience the job has few equals . . .

Eventually it looked like a glider. The wings weren't precisely symmetrical, and the control surfaces pivoted on wooden bearings with dowels shaped by flint knives and thrust into holes enlarged by flint drill bits; the fabric was sewn with vine tendrils shoved through holes poked with a thorn; but it *looked* like a glider.

I remember the Cargo Cults of the South Seas.

The islanders had been sorry to see the airplanes go after World War II ended. Native magicians had made mockups of airplanes and landing fields. It was sympathetic magic intended to bring back the real airplanes and the great days of cargo and trade. I told Benito about the Cargo Cults, amusing him greatly, and only later realized what had brought them to mind.

What I was building would never look like more than a crude imitation of an airplane. But it would fly!

I spent as much time making tools as I did working on the sailplane. A bow drill: take one bow, as for shooting arrows; get a good curve in it, and instead of an arrow, take a piece of sapling. Wrap the bowstring around the piece of sapling. Attach the drillbit

to one end. You need a hard block in which the top of the sapling-chunk will rotate freely because you've worn a depression in it. Hold that block in one hand, put the drill point where you want it, and draw the bow back and forth with the other hand. The sapling turns. The point turns. In about a week you can drill a hole.

I'd heard that boat builders in Asia preferred their bowdrills to American electrics. They must have been crazy.

I worked. There were no distractions. The Builders must have altered my body radically. I didn't get hungry, thirsty, horny, or sleepy, and I never had to go to the bathroom. I wondered what I had become. What was my power source now? A power source with no food intake and no waste outlet? If it was beamed power, Benito and I would be turning ourselves off when we dropped the glider beyond the wall.

Beyond the wall . . . I hadn't thought much about that. What would we find outside? Dante had described a dark wood, a wilderness. Why not? A low gravity world, native vegetation allowed to run wild . . .

No guarantees, Carpentier. There might be nothing but Infernoland itself, a tremendous cone built in airless space, with a point-mass, a quantum black hole for instance, mounted at the tip to provide gravity. In that case we were dead.

I kept working.

And eventually, there it was. The Fudgesickle, by Carpentier and Company. "This is a demo, madam. The finished model will have many other desirable features,

such as landing gear and seats for the crew, and metal fastenings. . . ."

"Will that hold together?" Benito didn't seem particularly worried. His tone was more one of abstract curiosity.

"I think so. We shouldn't put much strain on it, but I've noticed we don't weigh what we should. Infernoland seems to be built on a lower gravity planet than Earth."

"Yours is the most curious delusion I have yet encountered here. Well, if it will fly, we may as well try it. The sooner you are done with this idiocy, the sooner we can reach the center and escape."

I could have killed him. So the Fudgesickle wasn't a thing of beauty. It would fly! And it was a lot better way out than his.

I didn't try to kill him for three reasons. First, he'd break my neck. Second, He *had* been useful as a guide; he'd gotten me the fabric. Third, I needed his help getting the Fudgesickle high enough on that cliff above us for a launching.

We pulled the glider up the slope and carried it until the land fell away as a steep cliff. The swamp bubbled like sludge, with sickly lights glowing among the odd-shaped bushes and trees.

"If we crash down there, we'll never get out," I said. "Can you fly this thing?"

"I have flown them." Benito laughed, with real humor.

"What?"

"I have done this before. We launched the glider from a much higher cliff. An Austrian soldier came to get me out of a sticky situation." He settled himself at the controls.

Something familiar about that story . . . but Benito was looking out at the swamp and I didn't ask him. He looked awfully big and heavy to be a glider pilot, and I had to remember that we didn't weigh what we should. I strained against the fuselage and shoved outward.

It wouldn't have worked if we hadn't been massless or nearly so. Even then I kept wondering about that. It chewed at my soul the way a ragged tooth attracts the tongue. How could we have weight and no mass? The wrong weight, and . . .

Infernoland. Disneyland of the Damnedable. How long had they kept me in that bottle? Clarke's Law kept running through my head, an old axiom of science fiction. 'Any sufficiently advanced technology is indistinguishable from magic.'

In my time it would take magic, the supernatural, to make that many people, not weightless, but *massless*. It wasn't even possible in theory to extract the inertia and leave the weight. But *they* could do it, the Builders, the God Corporation. Why? It must have cost a lot. Just how big a paying audience did they have?

*Who was watching us now?*

I heaved against the plane: and then there was no room for thought. The plane dropped like a rock, with me hanging onto the tail, crawling forward to get into the rear seat. Benito knew how to fly, all right. He let us dive, just missing the cliff, until we had built up speed; then he leveled out, taking us above the swamp and toward the red-hot city.

*Dis. Dante had described it,*

glowing with red-hot mosques, with demons on the walls to guard it. I didn't see any demons. I'd take them on faith. If the Builders could build Minos, they could make demons.

We were about a hundred feet above the swamp, and keeping steady altitude. There must have been warm air rising from the hellish brew below us. Then we were over the wall, and Benito banked sharply left to catch the updraft. The plane rose steadily, gliding along the gentle curve of the wall.

Benito shouted, "This won't do any good, you know."

"We're getting higher, aren't we?" I pointed down. The swamp had shrunk until I could see the gentle curve of the cliff beyond it. Cliff and red-hot wall were concentric arcs of circles.

The view to the right went down forever. Beyond what seemed the biggest maze ever built, steam rose in a thick curtain. Through wind-torn rents in the steam I could glimpse factories belching out ugly black dirt, a line of electric pylon towers, a yellow glow of desert . . . on and on, down and down.

What had it all *cost*? Thousands of times as much as Disneyland. What kind of people would build Infernoland and people it with unwilling damned souls?

If this worked out, I would never know.

We were higher than the cliffs to our left. It seemed that we had climbed fast, faster than we had any right to. But we were nearly weightless and completely massless. The plane had only its own structural

weight to lift. We continued to rise until we were in the hideous grey fog that served Infernoland for a sky.

It stank: excrement, oil, smog, sickness, slaughterhouses, everything hideous. There wasn't even the honest smell of sweat and locker rooms.

"We'll have to turn now," Benito said. "We can't stay in the updraft if we can't find it."

"That's right. Go!"

We banked left, then straightened out. The fog began to thin. We were doing it! Passing over the rings we'd struggled through. A wind full of weightless people bounced us about, then let us go. We passed over Minos' palace. It was even bigger than I'd thought. There was the wall ahead. We were going to make it.

*Have at you, Builders! You can't keep a science fiction writer in Hell!*

Even so, no hero worth writing about would have left Infernoland with so many questions unanswered. He would have led a revolution against the Builders, and never mind the odds. The plane would have been for reconnaissance, not escape.

Heinlein, van Vogt, "Doc" Smith, Robert Howard, all the men who wrote of mighty heroes: what would they think of me now? *Who cares? Go, Carpentier! Go, go!*

The villas of the First Circle slid below us.

And suddenly we were losing altitude again. The plane dipped sharply just over the cold river. I should have known it would. "We're not high enough!" I shouted.

"Obviously. What now?"

"Take us back to the thermals! Get up higher, we can try it again."

"As you wish." He didn't say it wouldn't work. He just banked left, into the bowl. Toward the winds.

Even below the grey fog, Infernoland's lighting was not good. Gloom and night, all the way down. Infernoland was a vast funnel, leading down, down . . . down where Benito said we had to go. And we were flying there.

Suddenly we were in the winds. People flew about us like flurries of autumn leaves, some together, some alone. Aerial whirlpool ahead, which Benito avoided. And off to the left a straight updraft, flailing human shapes rising helplessly toward Infernoland's invisible roof. Just before they vanished into the grey stinking fog, the air column topped out and they streamed away to both sides.

"There," I said. I pointed.

Benito shrugged expressively.

"I'm getting pretty damned tired of your defeatist attitude!"

He banked toward the updraft. Suddenly we were rising as in an elevator. I caught startled faces, and some of the whirling victims tried to swim toward us through the air; but they were rising faster than we were. They couldn't catch us. I was glad. Massless they might be, but if I could feel wind roaring past my ears and tugging at my hair, then people clinging to the wings would foul the airstream. We'd all crash.

We left the updraft and were carried along with the others. Sure enough we were just at the edge of the fog, so that we could hardly see below.

This was it! We were as high as we'd been above Dis, and much closer to the wall. "Now!" I shouted.

Benito even grinned at me as he turned toward the wall. This time we'd make it!

As he banked, something bulky hit him in the face and knocked him back into the seat, then slipped past and wrapped itself around me. I struggled to rip it off, and it fought back. We'd picked up a passenger.

"Let me at the controls! I used to be a glider pilot!" The hitchhiker pulled himself off me and scrambled into the other seat.

Benito didn't resist. "Let him fly," he said.

The plane turned sickeningly. We had lost altitude. I could see over the stranger's shoulder: cliffside, swampland, a glowing red line—

A tailspin, and we were beyond the place of the winds, headed back into the inner circles of Infernoland.

He pulled us out of the spin. Nothing subtle about it. He just stopped the spin with the ailerons, then pulled back on the tailflaps and hung on. Presently we were flying level again, headed toward the swamp. The stranger looked back at us, showing a lean, cheerful face beneath short, wind-tossed hair. "Where to?"

"Up and out. Over the wall."

"Good thinking, but there's a problem." He waved toward the cliff. We were well below the level of the winds.

I said, "There are red-hot walls down there. Good thermals. We'll spiral around them until we're high enough, then get back into the winds—"

"Not me."

"We have to! There are updrafts in the winds. Before you interfered we were high enough to get out of this place."

"Down is correct," Benito said.

"Not the way you mean!"

He shrugged. "It is the only way we can go now."

"No question about that." We headed out over the swamp again, feeling the rising air that was just strong enough to keep us level. If we didn't find an updraft we'd crash in the swamp.

The trouble was, we were looking for something invisible. You can't see a wind, you can only see what it does. I was looking for heat turbulence, or formations that might break a horizontal airstream and send it upwards; *anything*. There'd been no problem spotting updrafts when the wind was full of actors or draftees or whatever they were.

Ahead through the murk we could see the cherry-red glow of the walls of Dis. It looked a bit like the first sight of a town in the middle of the Nevada desert, and for a moment I thought of food and coffee and one-armed bandits, and girls . . .

We were over a hot-spot in the swamp. A shape rose from the murk and shook a fist at us. He had a big bushy Afro hairdo. He lost interest when another man in a voluminous white gown and high pointed cap rose up to scream at him. They were locked in battle when we left them.

"Take it easy," I told our pilot. "I think I saw the left wing bend way up when you pulled us out of the spin."

"Yeah, I saw it too. What did you build this thing out of?"

I told him. He looked uneasy. I asked, "What kind of gliders are you used to?"

"Hypersonic."

"Eh?" said Benito.

"Huh?" I said.

The stranger chortled. "Jerome Leigh Corbett, at your service. I was a space shuttle pilot. I had a dozen flights on my record, and then . . . You ever have one of those days?"

"Damned right," I said. Benito laughed and nodded.

We seemed to have enough altitude to reach the hot walls. They were close enough that we could make out details through the murk and the red glow. Corbett seemed to know what he was doing.

There were ripples in the dark mud below. A hand thrust itself upward, middle finger extended. There was no movement in the cobwebs and slimy moss hanging from the bushes, no wind, nothing; only the ripples in the mud.

"One of those days," Corbett said. "First, a twenty-six hour hold while we replaced one of the solid boosters. That was only irritating. We lost one of the three main motors going up. Then after we made orbit one of the fuel tank clamps jammed. Either of you know what a space shuttle looks like?"

I said I did. Benito said he didn't.

"Well, the tank is big and bulky and cheap. We carry the main motors down aboard the dart, the winged section, but we leave the tank to burn up in the atmosphere. If we couldn't get the tank loose

there wouldn't have been any point in going down."

"Did you?"

"Sure. We fired the orbital motors in bursts until the clamp sprang open and let us loose. Then we had to use more fuel to get back to our orbit. We were supposed to dump cargo and change orbit, but there wasn't enough fuel. We had to go down."

Benito was looking totally confused. It must have been gibberish to him. I asked, "What happened?"

"I don't know. I spacewalked out and looked at the fuel tank clamp. I swear there was nothing wrong. But maybe the metal fatigued, or maybe the hatch over the clamp lock got twisted—anyway, we were halfway down and going like a meteor when we got a burnthrough under the nose. I heard the maintenance techs—they were the cargo I couldn't jettison—screaming in the instrument room, then the whole nose peeled back in front of me. I woke up by that ferryboat. The crowd pushed me along to Minos and he threw me in the whirlwind."

"And why were you there?" Benito asked.

Corbett grinned. "Being a shuttle pilot carries a lot of prestige. The girls liked me."

We were over the walls of Dis now, and banked to catch the rising air. My seat surged comfortingly against me . . . and the left wing bent in the middle. The Fudgesickle turned on its side and dropped.

Corbett dropped the nose. The wing, relieved of pressure, straightened out. But when he tried to pull up it bent again. We'd have been better off if the loose section had

ripped away, but it hung on, dragging us back.

Corbett did his best. He tried to fly with the broken wing, the flap raised high on the right wing to compensate. We got some lift that way, but there wasn't any doubt: we were going to crash.

Inside the walls of Dis there were tombs. Dozens, hundreds, thousands of tombs, some glowing red hot, others dark. The whole landscape was littered with them.

On the walls themselves were—beings. They didn't look much like the cute little devils in Disney cartoons. They raged at us, and Corbett, seeing them, dove for speed to get out of their sight.

The wing folded entirely. Corbett played the controls like a virtuoso at an organ, heading out over the tombs and toward a steamy clear area beyond and below them, but we were too low, and falling lower, into the tombs—

We dropped into their midst. The plane kissed the top of one tomb, bounced, and smashed nose on against a wall of red hot iron.

### XIII

**F**LAME ROARED UP around me, as if a fuel tank had caught. I pulled myself loose and rolled out, clawing frantically with my hands as the flames washed over me. When I tried to get to my hands and knees my right leg wouldn't work. I pulled myself along the ground, dragging the useless leg behind me, whimpering with fear while the fire raged behind and the air I breathed grew unbearably hot.



# C'mon

Come for  
the filter.

You'll stay  
for the taste.



19 mg. "tar," 1.2 mg. nicotine av. per cigarette, FTC Report Apr. '75.

Warning: The Surgeon General Has Determined  
That Cigarette Smoking Is Dangerous to Your Health.

**I'd heard  
enough to  
make me  
decide one  
of two things:  
quit or smoke True.**



**I smoke True.**

The low tar, low nicotine cigarette.  
Think about it.

King Regular: 11 mg. "tar", 0.6 mg. nicotine,  
King Menthol: 12 mg. "tar", 0.7 mg. nicotine, 100's Regular: 13 mg.  
"tar", 0.7 mg. nicotine, 100's Menthol: 13 mg. "tar", 0.8 mg. nicotine,  
av. per cigarette, FTC Report April 75.

Warning: The Surgeon General Has Determined  
That Cigarette Smoking Is Dangerous to Your Health.



I didn't stop until I was forty feet away. My fingernails were torn and my hands cut on the flinty ground. I rolled over onto my back to look behind me, afraid to look at my leg, knowing I'd have to. What I done to myself?

Someone was screaming.

I ignored the deep throbbing incoherent pain in my leg to look back at the crashed glider. Benito had been thrown clear in the crash. Now he was running back toward the glider.

Corbett was trapped in the wreckage, rammed up against the red-hot iron tomb, screaming like a damned soul. I didn't even consider trying to get him out. He'd be dead in seconds. His skin would already have charred away, and he was breathing superheated air and smoke. How could he scream like that with seared lungs? He was a dead man.

Benito hadn't thought of that. He ran straight back into the flames. I watched in disbelief as he pulled at Corbett's arm, getting nowhere, while fire roared about him. Benito took flaming wreckage in his hands and heaved it away, clawing to get Corbett out.

Idiot! He'd leave me stranded here, my leg ruined, with no guide and no one to help me! I sat up and tried to go to his aid, but agony flashed in my leg. I had to look down.

I stared at two splintered ends of red-and-white bone protruding through my thigh. Bright blood spurted through the torn skin. Arterial bright, impossibly red. I couldn't take my eyes away.

Once before I'd broken a bone.

I'd caught a football wrong in high school, and a knuckle had cracked. It had made me sick, not just the pain, but the thought of that broken thing inside me. I could hardly walk to the clinic. Now I stared at two ends of a broken thighbone while my life's blood jetted out with each pulse. I expected to faint. But nothing happened, and presently I thought of making a tourniquet before all my blood was gone.

There was only my robe. I gripped the hem in my teeth and pulled with both hands. It wouldn't tear, and wouldn't tear, and bright blood jetted in the air.

*Benito!* I was lying with a broken bone and a terrible wound, but I could be saved! Why was Benito wasting his time on a hopeless case, a man he'd barely met, a *hitchhiker*? It wasn't fair.

Corbett was still screaming as Benito tore at the wreckage. Where did the pilot find the strength? He should be finished, lungs burned out, heart stopped, but he went on screaming mechanically as if the sounds of pain were being ripped out of him.

The pilot came loose suddenly and they both went sprawling backward. Benito got up and dragged the pilot over to me. Benito was parboiled and hairless; his hands blistered and burned. Corbett was a charred corpse, black from end to end, with bloodrare steak showing through cracks in the char. There were no eyes left in the sockets. And still sounds came through the swollen blackened lips.

"Stupid!" I said. "Stupid, stupid, stupid! In a minute he'll be dead anyway!"

"He will heal," said Benito. "He is dead already."

"Heal?"

"Certainly."

Agony surged in my leg. I looked down . . . and couldn't look away. I watched in helpless fascination.

The blood had stopped pumping. The bone ends gradually vanished as skin crawled out to cover them. It crawled on, closing the wound, leaving my leg in an odd tented shape. Without my willing it the leg straightened slowly.

An old scar I'd once got fishing slowly reappeared where before there had been bloody jagged bone end. The pain turned to a ferocious itch. That went away too.

I was healed.

Corbett had stopped screaming. Now he only moaned softly. I looked, afraid to look, afraid not to. The char was flaking off him in thick patches. The skin beneath was bright sunburn red, not at all like raw meat. His tattoo, like my scar, came up from underneath his skin like a self-developing photograph. He groaned again, and opened his eyes.

There were eyes in the sockets. Corbett looked at me and smiled weakly. "Can't die again, I guess. Wished I could for a time there."

"It is a pointless and evil wish," said Benito. "The dead cannot die."

"No." Corbett began an inspection of his body.

I stood up uncertainly. Benito watched, saying nothing. I was able to stand. I could walk. I did. I went off a way, toward the glowing tomb, until the heat was nearly unbearable, and I stared at it.

We'll have to change our theory, won't we, Carpentier? Corbett's no robot. The Builders would have had to put new, sunburned skin under the skin to be charred. They would have had to plan all this ahead of time. They would have to be omniscient.

And what about your leg, Carpentier? *What about your leg?*

Biological engineering. Rapid regeneration. That, to add to their other powers. They can warp space, and possibly time. They can take the mass from a human body and leave the weight. They can put Minos' tail into—where? Hyperspace? They've got fine-tuned weather control and infinitely adaptable robots.

And they can engineer your body, Carpentier, *your* body, in such a way that it heals in minutes, and do it without your knowing they gave you that ability.

Getting a little thin, isn't it, Carpentier? A neat set of rationalizations, but it won't work. How are these Builders different from God Himself? What can God do that they can't?

And back at the edge of my mind I couldn't help remembering the last thing I'd screamed in the bottle.

Corbett had got up and was peeling saucer-sized flakes of charred skin from his chest and shoulders. "Hot here," he said.

I nodded and abandoned my reverie.

It was hot. Even the tombs that weren't glowing were just below red heat. Here and there flames shot up from open pits. It must have been painful for Corbett with his new skin.

I remembered where we were. Inside the walls of Dis. How were we to get out again? We were surrounded by hot glowing tombs, flames, fire, heat everywhere, except in one direction where darkness showed through the red glow.

"We have to get out of here," I said to Benito. "We'll roast to—We'll roast." To death? We couldn't die. Can't die twice, Carpentier.

"Of course we must leave," Benito said. "Recall your promise. I helped you with the glider, and it did not work. Now you have no choice. We go downward."

"Which way?" For that moment I didn't care.

"I am not sure. We may as well go where it is more comfortable." He led us off toward the dark. It drew us onward, promising relief from the heat and the choking air. We threaded our way between heated tombs and great vat-like pits with fire dancing from them. Huge lids that would just cover them lay beside each one.

The edge of the hot region was the beginning of a white marble maze. The heat stopped as if we'd gone through an insulated doorway, but there was no door. I wasn't even surprised. It would take more than invisible heat barriers to surprise me now.

Corbett staggered into a corridor and sank down with a happy sigh, his back against cool marble. He wriggled to get his head clear of the brass fixtures.

We were in an endlessly sprawling building. The corridors were about fifteen feet wide and nearly that high. Every wall was covered

with square-cut marble slabs and rows of brass plates and slender brass . . . what? Vases? I read some of the plates. *Name, birth-date, date of death.* Sometimes an insipid poem. These were burial vaults, and those brass things were vases, and of course there were no flowers in them. The corridor stretched on endlessly, and there seemed to be branches at frequent intervals. Millions of tombs . . .

"More unbelievers," I said.

"Yes," Benito answered.

"But I was an unbeliever. An agnostic."

"Of course."

"Why of course?"

"I found you in the Vestibule," said Benito. "But now you know the truth."

A two-syllable response stuck in my throat. The truth was an elusive thing, here in Infernoland. I could talk about advanced technologies until Hell froze over, and Benito would still call them miracles.

I'd watched a miracle. A compound fracture had healed before my eyes. And I was no robot!

But this place had to be artificial. It was a construct, a design. I knew that.

All right, Carpentier. An artifact implies an artificer. There has to be a designer. Pick a Chief Engineer for the Builders, and call him . . . what? Good fannish names, like Ghod, Ghu, Roscoe, the Ceiling? No. Call him Big Juju.

Question, Carpentier. In what way do Big Juju's abilities differ from God Almighty's?

Size? This place is the size of a small planet. Carpentier, you've no way of knowing Big Juju can't

build even bigger. Worlds, stars, whole universes.

Natural laws? He suspends them at will. A world-sized funnel, as stable as a sphere would be in normal space. And—and he can raise the dead. Me! Corbett, who couldn't possibly have been frozen. Jan Petri the health food addict, *cremated*, Carpentier, burned to a pile of greasy ashes and a few chunks of bone, and now risen so that he can be tortured.

Big Juju can create. He can destroy. He can raise the dead and heal the sick. Was more ever claimed for Christ?

I looked back at the red-hot tombs. They still glowed with heat, but none of that reached us in these cool marble halls. "There are people in those tombs?"

Benito nodded. "Heretics."

The word was frightening. Heretics. They believed in the wrong gods, or worshipped the right god in the wrong way. For that they were raised from the dead so they could be tortured in hotboxes.

Iago says it. 'Credo in un Dio cruel.' I believe in a cruel God. And that you must believe, Carpentier. The ability to make a universe does not presuppose moral superiority. We have seen no strong evidence that Big Juju's moral judgments are better than our own. Would God torture people?

I half-remembered Sunday school lessons. No. But also, yes. It was one reason I was an agnostic. How could I worship a God Who kept a private dungeon called Hell? That might be all right for Dante Alighieri, a Renaissance Italian, but Carpentier has higher standards!

A voice floated from within my mind, a tired voice whispering out of a mound of fat. *We're in the hands of infinite power and infinite sadism.*

We were in the private museum park of Big Juju. "We've got to get out of here."

"Too right," said Corbett. He paused. "Music?"

I listened. There was music playing from somewhere within these marble corridors. Something chintzy-sweet, a minor note in it. Artificial good cheer in Hell.

"It fits," I said. "Granted we're damned, how do we get out? Which way?"

Benito looked around him. "I have never been in this part before."

"Not back out there," Corbett insisted. "Not unless we have to."

"Right. We've got time," I said. And I started laughing.

It was an awful sound. It bounced around in the maze and came back at me from all directions, transmuted to racking sobs. I tried to stop. Corbett and Benito were staring. I tried to tell them:

"I was right. Just once, I was right. All that time in the bottle, all that guessing, and I was right just once. Immortality! When they woke me up they had immortality." Dammit, I was crying.

Corbett took my arm. "Come on, Allen."

We went inward.

#### XIV

**T**HE CORRIDORS BRANCHED away, endless cross-corridors in an endless corridor, and every one of them the

same, wall after wall of marble-sealed caskets, each with its empty bronze vases for flowers. Our footsteps echoed hollowly. Our sandals hadn't been touched by the flames. The sprightly music continued, never getting louder, and the light never changed, neither gloomy nor bright. On and on, corridor after corridor. Finally we halted.

"We haven't turned," I said.

Corbett nodded. "Do a one-eighty and we can get out of here. Let's."

Half-facetiously I rapped on a bronze nameplate and read off the name and dates. A translucent human shape formed before me. I stared in horror, then shrugged. What was a ghost among ghosts?

"Pardon me," I said. "Can you direct us toward the wall of Dis?"

The ghost's voice was faint and reedy. "Wall? Dis?" Faint laughter. "They must have added more extensions to the Mausoleum. I don't remember anything like that in Forest Lawn."

"Very funny. This isn't Forest Lawn."

The ghost seemed vexed. "I was supposed to be buried in Forest Lawn. I paid for it before I died. It was in my will. Where am I?"

"Would you believe Hell?"

More faint laughter, as if from a great distance. "Certainly not. I don't even believe in ghosts." And then there was nothing but the wall.

I jumped when Corbett spoke behind me. "It's a risk, but are you game to try a cross-corridor? I think if we turn left and keep going straight we'll be headed up again.

**T**HE SCENERY CHANGED. Now  
**INFERNO**

there were niches with urns in them, much closer together. We came to a T-intersection, and turned, and returned to the right direction when we could. Then another T, and a Y, and a big round empty space with corridors off in all directions and a big monument in the very center . . .

. . . and we were in the good section of town. The sarcophagi were no longer buried in the walls. At the ends of short alcoves were huge marble oblongs, ornately carved, guarded by traditional statuary. Knights, and vague sexless winged beings that were supposed to be angels and might have been faggots; reproductions of famous religious statuary; original creations, all done with enormous competence, all in monstrous bad taste. Sculpted Bibles open to John 3:16. Replicas of European cathedrals, done in perfect scale, bronze toys.

One alcove was blocked off by a brass gate and enormous lock. All the nameplates were of the same family, all ornately carved with relief pictures and bronze replicas of their life's signatures. We looked in, grinned at each other, and went on.

Pride. Unbelievably ornate monuments purchased at unbelievable price: expensive tombs turned prison. I wondered if they matched monuments left behind on Earth. Sure, I decided. Big Juju has a sense of fitness.

*Fitness?*

In this one case, yes, fitness.

The corridors twisted again and again. The dead were high walls on all sides of us. Our footsteps were dull intrusions on music for the

proud dead. The dead walked among the dead. Dead. Dead. *Dead. Dead!* Word and reality echoed with each step. Word and reality hammered at my soul. Dead. Dead. Dead. Presently I sat down against cool marble.

"Allen? What is the trouble?" Benito's anxious voice was far away.

"Come on, let's get moving. This place gives me the creeps." Corbett shoved at me with his toe. "C'mon."

I tried to speak. It wasn't worth the effort, but finally I heard my own voice saying, "We're dead. Dead. It's all over. We tried to make lives for ourselves, and we didn't make it, and we're dead. Oh, Corbett, I wish I'd died like you."

The gay sweet music mocked me. Dead. Dead. Dead.

Green light blinked on and off in the corner of my eye. It was annoying, a disturbance, an irritant in the thick cotton closing about me. I could see the source without turning my head, but it was an effort to move my eyes. Why bother? But the light winked on and off, and eventually I looked at the source, a neon sign blinking far down at the dead end of a corridor of the dead. It echoed my thought:

SO IT GOES  
SO IT GOES  
SO IT GOES

—off and on, endlessly, in green neon.

Unreachably far away, on another world, in another time, Allen Carpentier had been buried like a potato in a closed coffin ceremony.

The fans had come to the funeral, some of them, and a few writers had come, and afterward they'd gone off to have a drink and talk about new writers. Corbett was dead, and that was all there was to it. I could speculate forever about Big Juju's moral superiority, I could wander forever through Hell, and so what?

SO IT GOES  
SO IT GOES

Corbett's voice came dimly. "We may have to leave him. I saw this happen to a guy, once, in the war. He's going autistic."

"I have seen it also. Many times. Would you leave him here?"

I thought Benito was shaking my shoulder.

SO IT GOES  
SO IT GOES  
SO IT GOES

—what was a blinking neon sign doing in this place?

A horrible suspicion filtered through the blankets around my brain. I pushed Benito away and surged to my feet. I walked, wobbling, toward the blinking light. So it goes?

At the end of the corridor was a tremendous square-cut edifice in black marble. The epitaph beneath the neon sign was long and wordy, couched in words of one syllable and short, simple sentences. A man's life history, a list of books and awards—

Corbet and Benito stared when I came back. Corbett said, "You look like you're ready to kill somebody."

I jerked my thumb behind me. At first I couldn't speak, I was that angry. "Him. Why him? A science

fiction writer who lied about being a science fiction writer because he got more money that way. He wrote whole novels in baby talk, with sixth grade drawings in them, and third grade science, and he *knew* better. How does he rate a monument that size?"

Benito's smile was lopsided. "You envy him that tomb?"

"If you must know, I was writing better than he ever did before I left high school!"

"Being dead hasn't hurt your ego," said Corbett. "Good. We thought we'd lost you."

"He's got vases bigger than the bottle they put me in!"

"You were an agnostic. Selfish, but not viciously so," Benito said. "If I judge rightly from the size of his tomb, he must have founded his own religion. And possibly worshipped himself."

"No, they were jokes, sort of. But he did found at least two, not that there were ever any followers, or that he even intended there to be. One of them had everyone telling comforting lies to everyone else. The other was the Church of God the Fairly Competent. Maybe I should have gone in for something like that."

"Why didn't you?" Corbett asked.

"Because what's the point of mocking people who've found something to believe in." I turned toward the big, gaudy edifice. "That's the point."

Benito shook his head wonderingly. "I question your sanity. He is in there. You are out here, free to escape."

I didn't answer, but he was right.

**INFERNO**

We turned away. For a time I could see the green reflection blinking ahead of us.

## SO IT GOES

**W**E WERE LOST in endless corridors of the dead. Benito walked in stolid patience, but Corbett's face had acquired a grim, set look, desperation barely held in check. I kept my own thoughts to myself.

But I remembered Big Juju's ability to distort space and time.

We'd come a long way. Perhaps there was no way out.

And what if we did get out of the maze?

Benito said we had all eternity. Eternity in Infernoland. Or in Hell. Big Juju or God, it didn't matter; the problem was to escape.

I'd built a glider once, and it had flown. Get me through the wall, get me fabric for the wings, and I'd do it again.

But I'd have to do it without Benito.

*You promised you'd go with him, Carpentier. Down to the center, out his way. You can keep your word, or you can break it; but if you break it, it'll be without his help.*

Suppose he's crazy? Or an agent for Big Juju?

*Then you're on your own.*

Nuts. Benito might be able to trick the damned bureaucrats into giving us whatever we wanted. I couldn't kid myself I'd be able to. Fabric I could get—at worst, by peeling it off catatonics—but how to get through the wall? I'd seen demons on the rim. More demons guarded the gate.

I glanced sideways at Benito.

Stolid patience, and iron faith in God and the maps of Dante Alighieri. And Carpentier's given word. If we ever got out of this maze, he'd go down. We could follow or not.

I felt heat ahead. We turned a corner and found a wall of red-hot urns. The floor seemed to slant uphill.

Corbett whooped. "This way! To the wall!" His voice sounded out of place in the Mausoleum. I waited for Benito to protest, but he said nothing, and I wondered if he knew something we didn't.

"We could make quite a safari," Corbett shouted. He was over-joyful at finding a way out. "Just open these urns and pour out the ashes."

"I went further than that, once," Benito told us. "I attempted to establish a local government."

"Didn't work?"

"No."

"Why?"

There was no answer. It became apparent that there wouldn't be one. Something else to think about.

We hit a T-corridor and were back in cool marble. We followed it a short way, anxious lest we find ourselves back in the endless tombs. It turned left again. I rounded the turn ahead of the others and found myself facing red heat. I shaded my eyes—

"Your papers, please?"

I squinted through my fingers.

I faced a towering wall of red hot iron, with a divided door in it. There was a counter on the lower closed half of the door, and someone behind it, half-hidden in the dark interior framed by bright red light. He held a stack of papers.

The bored face showed no sign of recognition. It might have been the same clerk or a different one.

"Papers? Come on, I haven't got all eternity." He pushed the stack of papers toward me. "You'll have to make these out before you can go uphill. It's in the Rules."

I backed around the corner. To the questioning looks of the others I said, "Don't ask. Just turn around."

We went back the way we'd come, looking for a right turn. Presently we found it, and—

"Your papers, please?"

I walked toward the booth, but I was studying the gate behind the clerk. Iron glowing red, but it was only waist high. We could jump it.

The counter turned white hot as I approached.

"Papers? You'll have to fill out the forms. No exceptions."

I looked to Benito. He shrugged and turned away. After a moment I followed, hating him. He wasn't going to help.

And he'd known it all along. We had to go downhill.

## XV

THE MUSIC went with us wherever we went: nature themes, melodramatic sweetness, singing violins, but never funeral dirges or somber tones. The cheerful music was more depressing than any funeral march.

Gradually I realized we could hear something else as well. I don't know if it had been with us the whole time, waiting for us to become aware of it, or if it began as we threaded our way deeper into Hell.

The sounds came from the tombs. Groaning. Whimpers. Croaks of rage. Mumbled curses. Once even gay whistling, a tune that jarred against the canned music.

Gradually the clammy air warmed. It was our first sign that we were moving out of the maze.

We followed currents of warming air. Where the air turned steamy-hot we found a doorway.

Unnerving sounds reached us through the doorway: screams of agony torn from throats that could contain them no longer, blended with animal war cries and the most vicious curses I'd ever imagined.

Corbett plunged ahead, but Benito caught him. "Carefully," he warned us.

We looked out and down. The ground fell straight away from the doorsill, first vertically, then angling down to a forty-five degree slope. The dirt was baked adobe with jagged edges of protruding flint.

The bottom of the cliff was obscured by steam, much like the marsh outside Dis, but this was hot. The steam roiled about, leaving occasional clear patches. Gradually the picture formed.

We were looking at an enormous discolored lake. The shore curved away to either side until steam hid the endpoints. Men and women stood waist deep in steamy red water, and they howled. They were packed like a public pool on a Kansas summer Saturday; and they wanted out.

Some tried it, but they didn't make it. Armed men patrolled the shore between us and the scarlet water. The guards were dressed for

a costume ball, in the military garb of all places and all times; but they walked like sentries whose officers are watching. Their eyes were uniformly on the lake, and they held weapons ready.

**Weapons:** there was every hand-weapon known to history. Pistols, bows, scythes, crossbows, throwing-sticks, slings, pikes and lances, AS-15 rifles, all held at the ready. When someone attempted to leave the lake, the sentries fired.

I saw a woman in black military uniform cut nearly in half by a burst from an automatic rifle. She shrieked in agony and waded deeper into the lake, where she stood, healing.

**Healing.** The implications of our inability to die began to get through to me then.

One man in a long beard wore a golden crown on his head and clustered crossbow bolts through his chest. He was stubborn. He'd move toward the shore. The crossbowmen would fire, and he'd stagger back, the scream hissing through clenched teeth. He'd pluck the bolts from his chest and throw them contemptuously into the water—and wade toward shore again.

And again. And again. He was a fool, but a brave one.

"I take it the guards won't be on our side," I whispered.

Benito shuddered. "No. On the contrary, if they catch us, we—" He didn't finish, but he didn't have to.

The guards looked silly in those costumes. I knew some of them. Nazi swastikas and American GI. Coldstream Guards and Cameron Highlander. Blue and grey of the

Civil War. World War I helmets. Redcoats and the blue-and-buff of Washington's Continentals. Fuzzy-wuzzies and Chinese Gordon's Tommies, and more: Roman Legion, Greek hoplite, vaguely Asiatic uniforms, long gowns and wicker shields, spears with golden apples on the hilts; and more still, yellow men in animal fur, red and black men in little besides war paint, blue men stark naked. Blue? Britons in their woad, marching beside Legionaires, followed by men and women in coveralls carrying tiny machine guns of a variety I'd never seen.

And they watched the lake, constantly, vigilantly. "They won't see us up here," I said. "Now what?"

"We must cross the lake," said Benito. "There is a place, far around, where it is only ankle deep. Elsewhere it rises to above our heads in the deepest parts. The damned stand at a depth appropriate to the violence they did on Earth."

"That water looks hot. It steams."

"It is boiling blood," Benito laughed without humor. "What would you expect for the violent?"

A frozen moment stretched endlessly. Then Corbett shouted, "We can't walk into that! No!"

"Jerry—"

"I've been burned before, remember? We'll never make it! When our ankles are cooked we'll go to our knees. When the legs are cooked we'll be lying in it!"

"Yet you see that every man and woman in the lake is standing."

The calm voice halted Corbett's panicky monologue. He looked. I'd already seen that Benito was right. If they could stand, their cooked

legs must still be operating. They also wouldn't stop hurting . . .

"The guards will not allow us to wander freely in Hell," Benito cautioned us. "Without instructions regarding our sentence, they may well force us to the deepest spot and keep us there. You have noted that their weapons do not kill, but they can disable."

*Let's stay here, Carpentier. I'm starting to like the music.*

"They must not notice us. We must do as little screaming as possible." Benito spoke seriously, without a trace of humor. Benito had been in Hell so long that suffering was not remarkable to him, or even unusual.

"There may be a better way," Corbett said slowly. He pointed. "Allen, what do you see?"

"An island." Half-obscured by steam, it stood very low in the lake a good mile to our right. It was more crowded than the water around it, the water that Benito said was boiling blood.

Poetic justice. Infinitely exaggerated, as everything was here. No doubt the people boiling down there were murderers in life, or torturers, or kidnappers, arsonists perhaps. The violent. Well, at least we knew how to get across. "Benito, can we cross on the island?"

He stared pop-eyed, his big square jaw thrust forward. "I had no idea there was an island in Acheron. Dante did not describe it."

"I suppose he mentioned boiling blood?"

"Of course. He also described the ford I used before. The ford is heavily guarded, and perhaps the Is-

land would be better." He considered. "Dante did not mention the ship in Acheron either."

"Ship?"

"Yes, Allen, a wooden sailing ship sunken on the other side of Acheron. The decks are just awash with blood. I have been aboard it. There are grills in the deck, and souls beneath the grills."

"Slave traders," Corbett speculated.

"Probably," said Benito.

But how had Benito been aboard? Was that where he had escaped from? Or from deeper down? I didn't dare ask, yet how could we trust him until we knew his crime?

How could we not?

"Slave traders aren't our problem," Corbett said. "I suppose the best plan would be to circle up here until we're just opposite the island, then make a run for it."

We looked at each other and nodded agreement.

We turned back inside to parallel the shore, passing walls of shelves packed with crematory urns. I savored the cool, damp air. I was going to miss it. The cliff-edge was just beyond that wall.

*Why bother, Carpentier? Why not stay here?*

No. We've got to get out of here. Minos would track us down, eventually, and then what? We have to escape.

*Hey, Carpentier, what makes you think there's a way out?*

I don't want to think about that. There has to be a way out. Benito says there is. Dante described it—

*A way out for him, yes! A living man whose guide called on angels!*

There is a way out of Hell and

we're going to find it, because we can't die trying, because there's nothing else to do but sit for eternity. Eternity.

*I'm scared, Carpentier.*

Me too. Let's talk to the others. They're scared like you. Talking helps.

"The guards," I said. "They bother me two ways."

Corbett said, "It's *boiling* that bothers me."

"I don't think I'll like being shot full of arrows and bullets," I said. "But worse than that, what the blazes are they *doing* here?"

Corbett just laughed. They were guarding, his look said.

"They did violence they believed justified," said Benito. "They fought for what they thought was a higher cause."

"And there aren't any soldiers in Heaven?"

"I'm sure there are. But these enjoyed their work." His voice took on a note of sadness. "They enjoy it still. They do not seek to escape."

"It's weird. They're serving the Builders, or Big Juju, or God, whatever we call the master of this place. If they're serving God they ought to be in Heaven!"

Benito shrugged. "Or Purgatory. Perhaps. Theology is not my speciality. The next doorway is just ahead, be careful."

He wouldn't say more, but I remembered the uniformed servitors in Disneyland, and wondered if the guards worked in shifts. Did they have homes to go to when they got off work? Did they go home and tell their wives about their day?

We waited, peeking around the

door jamb to watch the shore. The island was just opposite, no more than fifty yards off shore, obscured by clouds of steam and no easier to see than it had been from a mile away.

A band marched past, robed and unarmed. "Inquisition priests," Benito murmured. "They would call the temporal authorities. The soldiers."

They receded. A handful of barbarian women passed, arms and shoulders the color of their bronze armor. They carried bows and shortswords. Behind them was another group, also women, wearing olive-drab fatigues and carrying submachineguns. They passed out of sight, and the shore was clear.

"Run," Benito ordered.

We ran. There was a ten foot drop to the steep slope. I landed on my feet and kept running in a half-controlled fall. Jagged flint edges tore at my feet. When I hit the beach I kept running, because I knew I'd never be able to *walk* into the boiling lake. The wandering clouds of steam wrapped me round, hid me from the guardians, and I ran toward the chorus of screams. The smell was overpowering, fresh blood and clotted blood, copper bright and polluted foul.

Corbett was ahead of me. He splashed into bubbling red fluid and screamed. He stood, covered to his knees, screaming in pain. Benito plunged in, waded through the stuff like a damned robot and gripped Corbett's arm to keep him from turning back. Then I was in it myself. I fell into a trench and was instantly waist deep.

The pain hit me weirdly, as if I'd

stuck my finger in a light socket. Stunning. Unreal. All my senses were scrambled. I knew the smell of pain, its sight and sound, and there was nothing to see or hear but pain. I couldn't control my limbs. They thrashed and twitched, almost spilling me full length into the stuff.

Still jerking like a marionette, I turned toward shore. Nothing could be worth this much pain.

Half a squad of Green Berets stood there studying us. They had friends: small men in black pajamas.

I turned back. We were committed now. Through a gap in the steamy mist I had seen their eyes: dull, expressionless, intent on their task; and their task was to let no one leave the blood.

"The island," I screamed. "To the island!" But I didn't move and neither did the others. We stood where we were and screamed.

"The island!" Corbett laughed hysterically, laughter and pain and horror. "We can't use the island—"

I screamed, "What?"

"Stupid! Look!"

He was right. I cursed the rolling clouds that had hidden it from view. They were shoulder to shoulder over every square inch of the island. I never saw a more vicious mob. They were armed haphazardly, with clubs and crude daggers of what seemed to be splintered bone. Even as I watched, someone trying to climb out of the blood was repelled by half a dozen stab wounds. He staggered away, howling, leaving a foaming red wake.

Benito came up to me, still pulling Corbett by the arm. "We must wade around the island."

I couldn't move. Suddenly he took my shoulder in his powerful grip, and began to plunge through the boiling red, towing both of us like children. I remembered his strength. There was no point in struggling with him. I didn't want to. I wanted *out*; but my limbs would not obey. The pain was paralyzing.

You could read the agony on Benito's face. He hurt as we did. But he plunged on. He shouted, "Deeper down, there is a place where souls are not even allowed to cry! Here there is no law against screaming!"

"Yeah! Cheer me up!" I screamed.

We halted. There were guards on the shore. A man in a high peaked hat stared through binoculars. We didn't dare move.

There are two ways to treat constant excruciating agony. Both involve screaming. You may try to suppress the screams, and they will force their way through your teeth; or you can just let it out. Similarly, you can concentrate on the source of pain and try to minimize it; a current of not-quite-boiling blood here on the left, get into it! Stand on tiptoe, you gain an inch . . .

Or you can tell yourself it will heal, and concentrate on something else.

There was turmoil on the island. People were shouting at one of their number. He stood with his feet planted wide and his hands raised high over his head. The hands held the haft of a spear: a length of wood that might have been a broken oar or a tree sapling, and a leaf-shaped blade poised a few inches

above his feet. Poised to strike; but at what? Hands reached to shake his shoulders, and he snarled in an agony different somehow from all the moans around him.

I tried to hear. By now the wordless moaning of the thousands of waders, even my own, had become a background noise, had faded like the sickening smell of boiling blood. I caught disjointed phrases.

"Kill 'em! Kill 'em before—"

"Billy, if you won't do it, let us through!"

"Idiot, you hafta, they'll be all around us in a minute—"

The man with the spear bellowed, "No!"

And the ground seemed to erupt beneath his feet.

He kicked at whatever was gripping his ankles. He kicked himself free and ran for the island's shore. Others got out of his way, then surged to close the gap. Behind him, that portion of the island was heaving as in an earthquake, and clubs and knives were rising and falling with horrible rhythm.

"Billy" splashed knee deep into boiling blood and stopped at once. As he sucked air for his first shocked scream, three separate hands thrust forward against his back. He splashed face down. Two surging waves washed against the bathers around him.

He was up in a flash, his spear ready for war. I was sure he'd try to fight his way back onto the island. But he didn't. He turned and waded away, in our direction. A foot short of my nose he said, "Friend, it's not polite to stare."

"Sorry. What happened back there? Will they let you back?"

He glared back at his erstwhile neighbors. "Those bastards couldn't stop *me*." He sounded like he was holding his breath . . . as we all did, because each of us was trying to talk around a scream. It was almost funny, that sound. "I . . . never thought it would hurt so much," he said.

"Why didn't you stay?"

"Couldn't take the killing."

"What?"

Benito and Corbett had crowded close to listen. "Billy" studied me, his face contorted in agony. "Don't know about the island, do you?"

I shook my head. The Afrika Korps had gone, but curaissiers with muskets had replaced them. We still dared not move.

"We on the island, we killed people, just like you in the swimming hole. But we all had some excuse, some reason we had to kill. Like me. There was a range war going on. We wasn't even the ones that started it."

I said, "Yeah?"

He took it wrong. "You think maybe we could have stopped it? Gone along with the amnesty?"

I didn't know what he was talking about, and didn't much care. His blue eyes had turned killer in that moment. I said, "Don't mind me. I'm in Hell too."

That calmed him, and changed him. He was younger than me and shorter than me, and the short amateurish haircut gave him a pleasant boyish look. Though the hair was plastered down with blood . . . "Then' there's Harry Vogel," he continued, "he was robbing a liquor store and the owner pulled his mask off. He'd seen his

face, so he had to die, see? And Rich and Bonny Anderson, they kidnapped a kid, and it would have been okay, but he got away. Got as far as a great big street called a freeway, then some kind of machine hit him." He looked down, then continued talking, hurriedly, as if that would block the pain. "Bonnie's here, Rich isn't. Rich got religion. Hey, we got Aaron Burr on the island! And that guy who ran the Andersonville prison camp—"

"I get the idea. If they thought they had to do it, they don't get hurt as bad."

"Yeah." Billy looked down at his waist. "It hurts. I think this hurts as much as anything I ever did except die. But I wouldn't go back. No." But he looked back and wasn't sure. He said it again. "No! I won't ever kill anyone again!"

"That's twice you've—"

"Well, that island ain't any common dirt, you know. It's mostly judges and congressmen and lawyers and a few jury members and crooked sheriffs—"

"Wait! Wait!" I remembered the island surging up around him. "The island's people? Live people?"

I swear he was enjoying my reaction. "Yeah. We have to keep 'em crippled. It's what Minos does to them for letting known killers loose on the public that was paying them to protect them. Some was jury members that took bribes, and lawyers that fiddled with the evidence, and congressmen that passed laws against putting a man in jail if the evidence wasn't got in a special kind of way . . . I don't know. That kind of law is all new to me. The island was a lot smaller when I

first came here."

"And they keep coming back to life!" I was this shocked: I had forgotten to hurt.

"Friend, they sure do. And we have to keep persuading them not to move, one way or another. Otherwise they'd just swim away, and where'd we be?"

"Waist deep in boiling blood?"

He tried to laugh. "Well, I guess I'd rather boil. If they could die it'd be okay, but they can't. Let 'em alone long enough and they try to get up. I can't take it any more."

I felt Benito's hand on my shoulder. "Allen. The shore is clear of guards. I think we can move."

Corbett was already raising a wake. I started after him, tottering on stiffened legs. On impulse I turned back. "Why not come with us? It can't be any worse lower down."

His eyes sparked with hope. "Maybe you're right."

## XVI

WE WADED THROUGH boiling blood, going up to our chins before the bottom sloped up again. After an eternity we reached the other shore and let ourselves fall, each wrapped silently and solipsistically in his own pain. We lay in full view on what seemed to be rough white concrete. Four targets. If the guardians wanted us they could have us.

A long time later, Corbett found the strength to roll over. "They're all along the far shore," he reported. "Watching us. Nazis, Indians—"

Benito said, "Never mind. They will not hurt us. They do not bother those who wish to go deeper into Hell."

"That's a relief," said Corbett.

I wasn't so sure, but I held my peace. I inspected my feet, legs, buttocks. The meat was loose on my bones. I should have been dead down there; it should have stopped hurting. *Fat chance, Carpentier.*

And Billy, who must have hurt just as much as I did, was smiling to himself. I snarled, "What are you so damned happy about?"

"First off, this is the first chance I've had to lie down in a hundred years. Second, I don't have to kill anyone, even if they yell at me. Third, I didn't much like the company on that island. Maybe I'll like you better."

"Maybe. Who were you?"

"William Bonney. Just a cowhand that got done unto and did some back."

"Bonney?" Corbett sat up suddenly. He'd healed much faster than I had. "Billy the Kid?"

"Friend, there are a dozen men on the island that all claim they was Billy the Kid."

"And you?"

"I'm the real one."

I could see the wheels going round in Corbett's head. Were we supposed to spend eternity wondering if he were telling the truth? Corbett said, "Have it your way. I was a spaceship pilot."

"What? You mean like you been on the Moon?"

"Right."

Benito grunted and surged to his feet, then sat down hard with another grunt of pain. From the

waist down he showed bright red skin, very tender looking. Like Corbett, he'd healed fast; but he wasn't in condition to scout.

I asked, "Benito, what are we headed into? It's for sure we can't go back."

"The Wood of the Suicides lies ahead. A pleasant place, comparatively, if we can avoid the dogs."

"Dogs?"

"The Wood is punishment for the sin of suicide," Benito explained. "Each tree holds the soul of one who took his own life. They are not dangerous to us. But the Violent Wasters also suffer there, and the dogs are their punishment. There will not be many of the dog packs. It is almost an obsolete sin."

Corbett looked up. "Since when is a sin obsolete?"

"Customs change. In Dante's time there were men who would hold a party at which they would burn part of their wealth, to show how wealthy they were."

"Potlach!" I cried.

"Gesundheit," said Corbett.

"No, dammit, listen. There was a west coast Indian tribe that used to do just what Benito's talking about. Hold a party, burn a lot of valuables. They used to compete at it. I never knew the Italians did the same thing."

"They did," said Benito. "Their punishment is to run through these woods pursued by wild dogs. If the dogs catch them they tear them apart."

Billy was sitting up. "They heal after that?"

I was healing! My legs and buttocks still hurt, but the flesh was firm, and I could move the muscles.

I watched, fascinated, as new skin grew before my eyes.

"The dogs and the souls they pursue should be rare," Benito said, "and the trees can do us no harm. We should find this stretch easy." He stood up. "Ready?"

My feet were still tender, and Billy was complaining about his. But it didn't sound like we'd have to run anywhere. Corbett and Benito were healed.

We set off, deeper into Hell. It had become an obsession with me. Anything was better than waiting—and if I spent too much time remembering the agony in the lake, we'd never get started.

We left concrete for dirt. When we topped a gentle rise, the ground was suddenly all erosion gullies, hard red and yellow clay studded with gravel and gashed by flash floods. We had to scramble in and out of them. Some had water at the bottom, water filthy with broken bottles and bottle caps, used condoms, floating grease, occasional bursts of brightly colored dyes, chemicals that burned our sandalled feet. Nothing grew here; there were dead stumps of trees and dried brown vines reaching upward like dead old women's fingers. Strange smells moved on the air: incongruous whiffs of automobile exhaust, acids, burning oil and rubber.

Billy grunted. "I don't see no trees, Benito. Where'd you put the damn trees?"

"We should have reached the Wood long since. I do not understand. But we must go on."

We scrambled out of the gully and looked downward. We had a vista of Hell.

It looked like Hell on Earth. Nothing grew. We had to shout above a continual racket. In the distance rectangular shadows showed through the gloomy half-light and thick smog. Buildings? Factories?

I said, "Progress has caught up with your woods, Benito."

A clattering sounded nearby, within a cloud of roiling smoke. A woman ran out of the smoke, terror on her face, hair streaming behind her. She wore a torn evening gown with diamond brooch and earrings, high heeled shoes with jeweled ornaments. She ran holding the skirt high.

Billy shouted and tried to stop her. She dodged him and ran on. The clattering grew louder, and a bulldozer roared out of the smoke. A man ran just ahead of the blade. The 'dozer trailed smoke, and it was gaining on the fugitive. There was no driver.

Billy was in the bottom of the gully, curled up, his head wrapped in his arms. When the monster was past I went down to Billy. He was muttering to himself, and when I touched him he twitched galvanically. He leapt to his feet in fighting stance.

"I was never afraid of no man that ever lived," he said. "But I was scared of that. What was it?"

"Bulldozer. For moving dirt."

Billy stared into the smog, his face wondering. "You could tear down whole mountains with things like that."

"We did," Corbett said. "There's more than one way to be a violent waster."

Billy frowned. "How's that?" he asked.

"Pollution. This must be the place for people who ruin the environment." Corbett's face showed his disgust. "They did this to the Earth."

"But who gets chased by them things?"

"Real estate developers, I guess. Housing tract speculators. We shouldn't have too much trouble here." Corbett looked at us. "Or do we?"

I'd always been a conservationist myself. If Big Juju's poetic justice ran true to form, I'd be safe enough.

Or would I? Had I fallen by accident? I'd certainly put myself on that window ledge. If a bulldozer buried me here, would I become a tree?

"Let's go," said Billy. "This place gives me the willies."

We moved off by tacit consent.

"Where we going, anyway?" Billy asked.

"Past this round there is desert," Benito said. "A fiery desert, too hot for life, with flame falling from the sky. I know of only one way to cross it, and that was the way Dante used. A stream runs through the desert, the overflow from the lake of blood. It cools the desert as it moves through it."

"Miraculously," I said. I'd intended it to be contemptuous, but it hadn't come out that way. I'd seen too many miracles, all unpleasant.

Benito nodded. "Of course. We must find this stream, or we cannot cross. It runs through the Wood. Comrades, we must find the Wood." He turned left and walked on.

"Why this way?" Billy laughed.

"You ain't got any idea where that Wood is."

"No, but we must reach it if we walk far enough. It is only a matter of time."

Yeah, we had plenty of that. And Hell was a series of concentric circles, God only knew how big around. It might take years, and so what?

"Why not go the other way?"  
Billy insisted.

Benito shrugged. "Dante always turned left on his way down. But we will turn right if you like."

"Naw. It ain't important."

## XVII

THE NOISE, the smells, the desolation continued. The damned were here, placed by a macabre humor. Phantom heads rose from oil pools. Some were pecked incessantly by oil-smeared birds. A river ran past like an open sewer, and men and women lined the banks, mourning. The wails were constant in our ears, wails and roaring motors and clanking machines.

We looked into some of the huge buildings and pulled back out fast. Inside the noise was overwhelming. Here a sizzling hum of electricity, there a scream of metal grinding on metal, elsewhere a roar of flame. There were more of the damned in those buildings, and they were hard at work.

Our way led through one of the immense factories. Not a head lifted to see us pass. Incomprehensible widgets passed on an endless belt, and men and women screwed on nuts and tightened them and fitted the bottoms and the handles, end-

lessly. We followed the endless belt for miles until it went through a wall. On the other side more of the damned were taking the widgets apart. Machinery hummed and conveyors took the parts back to the other side of the wall.

We left the building to find oil derricks raising and lowering their heads like prehistoric giant birds. We crossed a strip mine, and Benito pointed out that it was laid out very like Hell itself: a vast series of descending circular terraces. But there was nothing at the bottom except stagnant water.

A towering oil-fueled power plant of spidery framework and miles of pipes and valves poured power into a cable thick as my waist. Transmission towers took the cable down-hill.

I peered along its length, but the murk defeated me. How did they use electricity in Hell? But outside the power plant was an athletic man chained to a wheelless bicycle set in concrete in front of the exhaust pipe of the generator. Black smoke poured around him, almost hiding him from view.

As we watched he began pedalling furiously. The hum of the gears rose to a high pitch—and the generator inside died. There was a moment of quiet. The man pedalled with sure strokes, faster and faster, his feet nearly invisible, his head tucked down as if against a wind. We gathered around, each wondering how long he could keep it up.

He began to tire. The blur of his feet slowed. The motors inside coughed and black smoke poured out. He choked and turned his head away and saw us.

"Don't answer if you'd rather not," I said, "but what whim of fate put you here?"

"I don't know!" he howled. "I was president of the largest and most effective environmental protection organization in the country! I fought this!" He braced himself and pedalled again. The hum rose and the generator died.

Billy was completely lost. He looked to Benito, but our guide only shrugged. Benito accepted everything. I knew better. This couldn't be justice, not even Big Juju's exaggerated justice. This was monstrous.

Corbett had to be guessing when he suddenly asked, "You opposed thermonuclear power plants?"

The guy stopped dead, staring as if Corbett were a ghost. The dynamo lurched into action and surrounded him with thick blue smoke.

"That's it, isn't it?" Corbett said gently. "You stopped the nuclear generators. I was just a kid during the power blackouts. We had to go to school in the dark because the whole country went on daylight saving time to save power."

"But they weren't safe!" He coughed. "They weren't safe!"

"How did you know that?" Benito asked.

"We had scientists in our organization. They proved it."

We turned away. Now I knew. I could quit looking for justice in Hell. There was only macabre humor. Why should that man be in the inner circles of Hell? At worst he belonged far above, with the bridge-destroyers of the second ledge. Or in Heaven. He hadn't created this bleak landscape.

I couldn't stand it. I went back. Benito shrugged and motioned to the others.

Within the cloud of blue smoke his face was slack with exhaustion. "It wasn't just the problem of where to bury the waste products," he told me. "There was radioactive gas going into the air." He spoke as if continuing a conversation. I must have been his only audience in years, or decades.

"You got a rotten deal," I said. "I wish I could do something."

He smiled bravely. "What else is new?" And he started to pedal.

I glared at the nothing sky, hating Big Juju. *Carpentier declares war.* When I looked down, Benito was fumbling through saddlebags attached to the stationary bicycle.

The man cried, "What are you doing?"

Benito took out papers. The man snatched at them, but Benito backed away. He read, "Dear Jon, I could understand your opposition to us last year. There was some doubt about the process, and you expressed fears all of us felt. But now you know better. I have no witnesses, but you told me you understood Dr. Pittman's demonstration. In God's Name, Jon, why do you continue? I ask you as your sister, as a fellow scientist, as a human being: why?"

He began pedalling again, ignoring us.

"You knew?" I demanded. He pedalled faster, his head bent. I leaned down and put my face close to his. "You knew?" I screamed.

"Fuck off."

Big Juju wins again. Too much, but appropriate. As we walked away, Jon screamed after us. "I'd

have been *nothing* if I gave up the movement! Nothing! Don't you understand? I had to stay as president!"

**W**E PLUNGED ON. Once we caught lungfuls of something unidentifiable. We were getting used to that by now. This time we wound up at the bottom of an erosion gully, kicking and twitching, unable to control our muscles.

"N, n, nerve g-g-gas," said Corbett.

We lay there for hours. Days perhaps. Eventually the wind shifted, and our legs could work again. Benito and Corbett scrambled up the side of the gully, then came back for Billy and me. As usual we were the last to heal. Big Juju's biological engineers hadn't done as good a job on us. We scrambled to the top.

Beyond the gully we saw trees.

That was all we could see through the sniffles and the tears and the dark, smoky air: a sharply bordered forest, some distance away.

We began to run. Trees. Real living things! or close to it; nothing was really alive in this terrible place. But trees! We ran, wearing fierce grins, noses lifted as if the air were already sweet . . .

Closer, they were not so inviting. Gnarled trunks, black leaves . . . Not Mother Nature herself could have called them pretty. Clumsy birds flapped above them. The forest ended abruptly at a border of flat ground. No, not ground. I stopped at the edge, confused.

The others ran heedlessly out onto the flat black borderland.

It was a road. Blacktop, and a white double line down the center. I called, "Hey, wait a . . ."

Things roared past and drowned my voice. Too fast to tell what they were, but I knew the sound: the whip of air, followed by a shriek of brakes. I screamed, "Run!"

Corbett was already running for his life. Benito and Billy stared at me; then Benito just took my word for it and ran toward me. Billy looked where I was looking . . . and for him it was already too late.

They looked like black Corvettes, 1970s models, but they were lower-slung and more rakish-looking. They'd stopped and turned and were coming back, accelerating hugely, leaving opaque black clouds of smoke.

Billy made up his mind to run, he turned; and they were on him. Billy flew high, hit hard, and rolled like a bean bag: no bones.

I started swearing. The cars roared away . . . two of them did. The third turned hard, right off the road. It rolled over once and landed upright and came for us, bouncing and rattling, but accelerating. Its headlights came on blindingly.

I stopped swearing and looked for cover.

"What are they?" Benito screamed.

"Cars. No drivers," Corbett told him. "I saw. Empty race cars. They must guard the forest."

I looked for cover: something to hide behind, or even a jumble of broken rock too rough for a car. Nothing. The black demon bore down on us.

"There!" I pointed, and ran. It

was an oil slick, depth unknown; and it would bloody well have to do.

I ran straight into the pool. My foot landed on something that jerked away and sent me sprawling. When I pulled my face out of the oil another black, dripping face looked back at me. "Sorry," I said.

"That's okay. We all got our own problems here," said the stranger; and he sank beneath the oil.

Benito was waist deep and wading deeper. Corbett hesitated at the edge, looked disgusted, looked behind him . . . squealed and dived sideways. I ducked under. The glare of headlights was branded on my closed eyes.

A wave of oil splashed over me. I lifted my head, and there it was: a rakish black sports car, hubcap-deep in the oil pool. Its motor was a demon-snarl; its wheels spun frantically. It found some traction from somewhere: it edged backward, found more traction and surged out of the pool just as Corbett went over the door in a flying dive.

The horn screamed in rage. The car backed, then turned in a tight circle. I think it was trying to roll over. It never made it. The motor died, the killer car rolled to a gentle stop.

Corbett stood up in the driver's seat, grinning all over his face. The keys dangled from his hand.

**B**ENITO AND I waded out, streaming oil.

Corbett had the hood of the murder car up and was inspecting the motor. "I used to race a little," he said. "I can probably drive this.

What do you say, shall we cross the desert in comfort?"

"You look it over," I told him. Benito and I went to see about Billy.

He lay twisted as no living man could be. We straightened him out. His body was mushy and limp. So was one side of his head. The good eye opened and looked at us.

Benito bent over Billy and took one of his hands between his own. "I don't know if you can hear me," he said. "I want you to know that you will heal. It will hurt, but you will heal."

I beckoned Benito out of Billy's hearing. I asked, "Should we take him with us?"

"I think so. He will be of no help until he heals, but what of that? He should be safe enough in an automobile. He can ride in the passenger seat."

We rejoined Corbett at the car.

"I don't know the make," he told us. "It's got a big mill, but the tuning is lousy. You saw how much smoke it was pouring out. I've been checking the brakes, and they look good—"

"The question," said Benito, "is whether it will obey the steering wheel and other controls. We saw it driving itself."

"Yeah." Corbett frowned, studying the car as one would search the face of a prisoner of war. Would he give information? Would it be the truth? "The top's down. We can always jump clear," he said. "No point in taking chances, though. Why don't you two get under cover, and I'll take her for a spin."

There wasn't any cover. We stood at the far edge of the oil pool,

ready to jump, as Corbett turned the ignition key. He drove the car around for awhile, trying it on rough and smooth terrain. He brought it back and prudently took the key before he got out.

"Seems okay. "I'll stay in low gear the whole trip. That way nothing can happen fast. If the gear shift starts moving by itself I'll give a yell."

"There's one more problem," I said. "Four of us. Two seats. Benito, shall we ride on the fenders?"

"I have no better suggestion."

The change was gradual. The air got hotter. Then there were no more oil pools. The dead ground gave way to hot dead sand, and Corbett worried aloud about the tires. A minute later he'd forgotten the tires; he was too busy slapping away fat flakes of burning matter.

## XVIII

IT SNOWED fire. Great burning flakes fell slowly from the dead gray sky and settled on us. We slapped frantically. Billy was slumped like a corpse while fire-flakes dropped to his skin and clung. I could reach his head by stretching backward along the fender, and I pulled a saucer-sized chunk from his face. His one good eye thanked me.

We rolled across a burning sandy waste. The fireflakes vanished when they touched ground, but not when they touched flesh. Another evil miracle. The car weaved drunkenly, then shifted into second and picked up speed.

I called back to Corbett. "Did you do that?"

"Yeah! You want to be out here forever?"

"Not really." The sand was flat enough for higher speed—provided we could control the car.

Billy grunted in soft protest. I could imagine his fear. He'd never seen a car before, or gone faster than a horse could run.

Fire bored into my back where I'd exposed it stretching to help Billy again. I slapped it off and wished for a Cadillac.

Cadillacs *belong* in Hell. There's something about the car that rots the driver's brain. Every time some damn fool has almost gotten me wrecked by running a red light or jumping lanes or parking where no car ought to be, said idiot has been driving a Cadillac. There *had* to be Cadillacs in Hell—and if we'd captured one of those, we'd be riding in air conditioned comfort! Instead of riding a fender and slapping fire-flakes!

Clusters of souls danced frenetically on the blazing sand. Some stopped, amazed, to watch us pass. A couple of times Corbett tooted the horn at them. He was cursed for his trouble, but he wasn't mocking them. There was nothing he could do.

I called across the low hood to Benito. "Who are they?"

Benito was busy tearing burning gunk out of his hair. "They sinned against Nature," he yelled over his shoulder.

"What does that mean?"

"Unnatural love. Man for man, woman for woman—"

Man for sheep, woman for vibrator . . . poor bastards. I wondered about the gay couple who'd owned

the house next door to mine. Quiet neighbors, friendly middle-aged people like any married couple without children. Were they here?

I turned my head and hunched up so that the fireflakes hit the side of my face instead of the front. I couldn't slap fast enough. The windshield gave Billy some protection now that we were moving.

The fire burned holes in my skin. *You'll heal, Carpentier. You'll heal, if we ever get out of here.*

*But what about them?* They danced, they slapped at themselves; they ran in circles; they screamed at us to stop and cursed us when we didn't, with an insane jealousy that I understood perfectly. They'd be here forever.

This, just for being queer? But it was no surprise to me that God's justice and mine didn't agree. I thought about my neighbors and shuddered. *Credo in un Dio cruel . . .*

The industrial section of Hell was only a yellow tinge to the sky behind us. Ahead was nothing but more desert. We must be about halfway across, I thought.

Suddenly the car surged forward with the bit in its teeth.

Corbett froze in panic. The motor screamed in inhuman fury as the car accelerated. In a second we'd be moving too fast to stop. I tucked my head in my arms and rolled off the fender.

Look, I wasn't running out on my buddies. The car was going to crash, and they'd have a better chance if one of us could move, right? It was what I was thinking, anyway.

The motor choked off while I was still in the air.

I hit rolling. I came up screaming and dancing. The other souls hadn't been dancing for joy either. The pain was as bad as the boiling blood.

The car rolled to a stop, and I ran for it, yelling and swearing at the fireflakes.

Suddenly a girl was running alongside me. She'd have been pretty once. Now her hair was raggedly scorched, and her body was covered with burns. "Can you take me out of here?" she screamed.

"We'll be lucky to get out ourselves. There's no room!" I kept running until I reached the car.

The girl stayed right with me. "Please, I'll do anything if you'll take me out of here. *Anything.*

"That's nice," Corbett told her. To me he said, "We're in big trouble. The gas pedal just floored itself. I had to turn off the ignition.

"Couldn't you—"

"Couldn't I what? Pull the pedal up with my toes? Allen, this car is haunted. It hates us."

"What's wrong?" the girl asked. She got no answer.

It was hard to think with the fire settling on me. I danced around the car, shouting, "We'd better think of something. In a minute or two we'll be under a pyramid of people." The damned were running toward us from all directions.

"Raise the bonnet," Benito commanded. "Corbett, see to Billy."

I got the hood up. We looked inside, and Benito said, "Now, Corbett, move the accelerator."

Something wiggled behind the engine.

"Allen, you saw? That moved the petrol feed. You must control it with your fingers."

It was a hell of an awkward position, sprawled across the fender with my head and hands under the hood. The motor was as hot as the sand. I couldn't avoid touching it. But I pulled at the widget and cried, "Okay! I got it! Corbett, go! Go like a bat!" The crowd was very near, and they couldn't *all* hang on. Benito motioned to the girl and she took the fender in front of me.

The car roared and surged into a converging circle. Most of them dodged for their lives. One went under the wheels. Another, a big athletic type with long black hair halfway down his back and a scraggly beard, got the edge of the right door and swung up on the trunk lid. A small-boned blond man had come with him. "Frank!" the companion called. "Frank! Don't leave me!"

"Sorry, Gene. Nothing I can do. No room for both of us."

"Frank!" The car gunned ahead as Corbett got it under control again. A thin voice followed us. "Frank! I went to Hell for you . . ."

Frank had managed to crawl up to get an arm around Corbett's neck. He squeezed. "All right, buddy, turn this thing around! We're going to Havana!"

"Fine. Whatever you say," said Corbett. Frank grinned and slacked off his grip on Corbett, but he didn't let go.

Now we had: Frank on the trunk; Billy in the passenger seat, groaning a little, still unable to move; Benito on the left front fender; me in the

motor compartment trying to stay clear of the hot engine, my legs dangling out to the right; and the girl forward on the right front fender, her feet on the bumper. Corbett had his problems driving. He had to lean way out to the left to see around the open hood.

Billy was able to scream now.

"For God's sake, brush the fire off him, Frank!" Corbett yelled.

"Screw that. Screw God too. Get moving."

We moved. Corbett yelled, and I slacked off on the gas to let him shift to second. That was fast enough. The car fought, the hot metal tugged against my fingers like something alive, but I could control the speed. At least we weren't hitting any bumps.

"HeeeHaaah!" Frank screamed in joy. "Better'n the last chicken run! I'll make you guys honorary Hell's Angels! We're tough, you know? Toughest bunch in the world, you know? Hick sheriff was so scared of us he called the State Fuzz. We run for it. I had the lead. Come around a curve and the whole road was full of Fuzzmobiles. I got two fuzz smearing myself."

"Your friend back there—" I shouted.

"Gene? We did some swinging times, man. Had a whole stable of 'em. Boys, girls, but the only one they let me keep here was Gene. Maybe I'll miss him." He didn't look back.

"Could you get that fire off my leg?" I asked the girl.

"Naw! Enough trouble holding on here."

"You said you'd do anything!" I clenched my teeth in agony. There

was fire on both legs now, and I couldn't slap. I couldn't let go of the spring, and I had to hold on with the other hand. The car was still fighting me. "Get that fire off or we'll throw you off!"

"Awright, awright, you don't have to get nasty." She slapped a couple of times and got the worst away.

"Who are you?" Benito asked.

"Doreen Lancer," she yelled above the roaring motor. "Go-go dancer. One night some bastard raped me and strangled me. At least, he tried to rape me!" She laughed bitterly. "He didn't seem to know how to go about it!"

"So what the hell are you doing here?" Frank demanded.

"Don't know! I liked it every which way. Most of the types I meet here are fags—"

"I'm no goddam fag!" Frank yelled.

"Do not blaspheme," Benito told him, predictably, I guess.

"Fuck off! Talk to me that way and I'll twist this bastard's neck off!" The car lurched as he choked Corbett.

"No!" Doreen screamed. "We'll crash! This is our only way out! Leave him alone—Look, don't hurt him, and when we get out we can really swing, right?"

I laughed. I couldn't help it.

"What's so funny?" she demanded.

"It's not a romantic situation!" I bellowed. I wasn't even sure there could be sex in Hell, and I hadn't found any opportunity to try. Or inclination, either.

I bellowed again when she slapped my testicles. It hurt as much as it

had when I was alive. I pulled the accelerator widget out, tugging with all my strength, letting the car slow.

"I'm sorry!" she yelled. "I was getting the fire off, I swear, that's all I was doing! I'm sorry . . . hey, you wanna be a threesome with Frank and me?"

I let the car speed up again. We had to get out of here. But I'd never had an offer I liked less.

"I can see something ahead!" Corbett shouted. "We're getting to the edge!"

"About time," Frank said. We rolled on. "Just remember, pretty boy, I'm in charge here," he added, and Corbett grunted in pain. Frank must have emphasized his words.

The horizon was sharp ahead. I could barely see over the motor. Corbett saw it too. "Kill the power!" he yelled. Brakes screeched, and he twisted the wheel hard.

I climbed out of the motor. The fireflakes were thicker here than in the middle of the desert. We ran, hopping—

Frank still had Corbett by the neck. "This the way out of here? What are you trying to pull?"

There was a sheer drop ahead of us. It was gloomy down there. I couldn't see the bottom. Several hundred feet, anyway. "Now what?" I asked Benito.

"The quick way would be to jump." He was dead serious. "Jump and wait to heal, then go on."

The girl backed away, staring at him. "You're crazy! Crazy! I should have known better than to trust guys like you! All the promises you make—" She didn't finish,

but ran back into the desert, crying.

"That's done it!" Frank yelled. "You're sure as Hell going over that cliff, all right, because I'm going to throw you!" He had Corbett by the neck and he dragged him toward the cliff edge. "First you, then your loudmouth friend, then the fat one, and then—"

He'd forgotten Billy. We all had. It was a mistake for Frank. Billy launched himself from the car without warning. He landed on Frank's back and seized the long hair with one hand, pulled the head back, and wrapped his arm around Frank's neck. His knee gouged into the Hell's Angel's back, bowing him into an arc. "Friend, I don't think I like you."

I yelled, "Billy! Are you all right?"

"Yeah."

"You weren't moving—"

"Been able to move a while now. Didn't seem like a good idea to let this creep know it. Jerry coulda crashed this thing if we were fightin' while it was movin'."

I thought about the self-control it would take to sit still under a rain of sticky fire.

"What'll I do with the Gila monster, Benito?"

"Leggo! I was only kidding!" Frank yelled. "You guys got no business giving me false hopes! It was all your fault—" He stopped talking because Billy's arm had closed his throat.

"Do not harm him," Benito said quietly.

"Yeah?" Billy let him go. "Friend, you're not tough. You don't know what tough is. Now get away from us." The pale blue eyes

seemed infinitely deep, and cold even in this place of fire.

"You may come with us if you like," Benito told Frank, "although I do not think you are ready. With your attitude you might well find a worse place than you have now. Still, you are welcome to join us."

"Go to Hell!" Frank screamed. He thought that was funny. "Go to Hell! Go to Hell!" He ran away into the desert, laughing, screaming, trying to keep both feet off the hot sand at once.

Benito looked at us, waiting.

"I'll jump if you say so," Billy said. "Looks bad, though. I can tell you, being crushed flat ain't no fun."

I gulped. "I will too." I wondered if I meant it.

"There may be a better way," Benito said, "We must find the stream. Corbett, can you drive?"

"Sure."

We turned left. I had the whole fender to sprawl on now. The car seemed more docile, too, but I wasn't going to trust it. I didn't really have to—I was getting good at manipulating the gas widget.

We came to a horde of people dressed in the finery of all ages: velvet robes, flare pants, alligator shoes. Corbett shouted at me. "Stopping!" He turned off the key before I could do anything, and the car rolled to a halt.

Fireflakes fell on us. "Now what?"

Corbett was out of the car and looking at a beefy man in gaudy tunic, crimson sash, and black glove leather boots. There was a big leather wallet hung on a golden chain around his neck, and he

stared into it, not looking up. The fireflakes had burned holes in his tunic and scorched his hair.

Corbett stood in front of him. When the burly man didn't look up, Corbett stooped over so that his face was in line with the wallet. "Give me my money!" Corbett shouted.

"You son of a bitch, you owe me!"

"But I've had this problem, see, my girl is . . ." Corbett began.

"I don't want to hear any stories, I just want my money! Argh!" A big fireflake settled on the crown of his head. He tried to brush it off.

"Hang tough," Corbett said. He came back to the car chuckling. "Long Harry there loaned me some cash, once. Six for five—every week."

I nodded. There were lots of others there, crying into their purses. The rain of fire seemed heavier here. "Let's get going." I didn't like Corbett gloating over them—but if anybody deserved to be here, it was them. Loan shark is as low a form of life as there is.

We didn't drive so fast that we couldn't talk. "Funny thing about Harry," Corbett said. "He had to give up the loan shark business. Had a customer with a hit man for a friend. Took his buddy Lem to see Harry, but Harry wouldn't listen. Just kep saying 'Give me my money.' So Lem had a talk with Harry."

"Lem?" Billy asked. He sounded puzzled.

"Yeah. I don't know what he told Harry, but just after that all of Harry's customers were off the hook. Just had to pay what they'd

got in the first place."

"Lem," Billy said. "Little guy? About my size? Big scar over his left eye?"

"Yeah," Corbett said. "You know him?"

"Kind of. They used to let him onto the island for a day. One day a year. The rest of the time he was out in the blood. I always did wonder why."

"We are coming to the stream," Benito said. "The fire does not fall there."

## XIX

THE RIVER was narrow but fast. Its roar was different somehow from that of water, and it was still bright scarlet. The air was thick with the smell of blood.

Nonetheless we walked down and bathed our half-broiled feet in it. Afterward we walked the cool mud of the bank with our sandals off until we reached the waterfall. There we watched endless tons of blood falling into the darkness.

I said, "Now what?"

Benito scowled in indecision. "It is a risk. The monster Geryon carried Dante and Virgil into lower Hell. But they were on a holy errand. We are not. I have known Geryon. He is not worthy of trust."

"The password," I remembered.

"This has been willed where what is willed must be." Yes. Shall we try it?"

"Better'n jumping" Billy looked at Benito. "It is, ain't it? What can he do to us? Eat us?"

"Summon Minos."

"Let's try it," said Corbett.

"We've gotten this far without anyone doing that."

"Are we agreed, then? Good. Now we must summon Geryon. We need a signal, something to get his attention. Dante flung a rope into the abyss."

"A signal," said Corbett. "Does it have to be subtle?"

"I should not think that subtlety would be necessary."

"We wouldn't want Geryon to think we're crude, would we? Some delicate change in the environment, just noticeable enough to attract his attention. Let me see." Corbett walked back to the car and switched on the ignition. He went around to the back and unscrewed the gas cap.

A fireflake fell past his nose. He blew on it, guiding it into the gas tank. The tank lit with a *Whoosh*. Hurriedly Corbett reached into the car and shifted it into first gear. We stood well back and watched it roll over the edge.

"Subtlety is all," said Corbett.

The car fell like a battlefield flare. It passed and illuminated a compact body already rising through the murk.

"He knew we were here." Corbett was flat on his belly with his face over the cliff's edge. "We didn't need a signal."

"He will not come without a signal," said Benito.

The car was a towering flame at the base of the cliff. Lighted from below, Geryon was a compact shadow with a slender, twisting tail. He floated up to us, his features growing clear. He hovered at our height, smiled reassuringly at us with a startlingly human face; then

slid forward onto the rock ledge, leaving his tail hanging free in space.

Geryon was as big as a rowboat, and wingless. His hind feet were webbed, built for swimming. His almost human head was hairless, the mouth wide, the chin broad and strong, the nose very wide and flat, with large nostrils. The head sloped back to round shoulders, without benefit of neck.

His arms were human enough, the size of my own. On Geryon they were disproportionately small. Something was funny about the hands; the fingers were short and thick, designed for ripping.

I could see him as an air-breathing aquatic beast that had developed human intelligence. I wondered about his nose. It was big enough to feed him air fast, hooded to keep water out. Reasonable, but different from the cetacean design.

His pelt had the look of medieval tapestry: golden knots and figures on a blue-grey background. Lovely; a trifle flashy. And adequate camouflage if he was used to hovering just beneath sunlit water.

Altogether he was a believable alien, excluding his ability to fly. I didn't like that. Bad enough if Infernoland had been built by humans. What if it had been built by interstellar conquerors for their own amusement?

Geryon's voice was deep, with a queer buzzing quality. "Hello, Benito. Three of them? Isn't that a bit much?"

Benito was brisk. He didn't like Geryon. "This has been willed where what is willed must be. In any case, you must have noticed



how the damned flow in like a river in flood—”

“Haven’t I just. Swamping you, are they? I think the end of the world must be near. Hell is getting full,” said the alien. “Well, we who serve God’s will in Hell have precious little of free will, eh, Benito? Climb aboard, you. I hope you can all hang on.”

He had spoken jovially, with no bitterness and only the merest trace of mockery.

My foot kicked something rigid as I tried to board Geryon’s reasonably flat back. I looked down. It wasn’t easy to see, but there was metal belted about Geryon’s belly, machinery covered with material the same color as his gaudy pelt.

Antigravity?

I settled behind the monster’s

head. Billy’s arms closed about my waist. Corbett was behind him, and Benito last, braving the twin stings in the forked tail. Geryon grinned at me over his shoulder and pushed back from the edge.

Billy’s arms tightened convulsively. I saw that his eyes were closed tight, his teeth clenched.

My view of Hell was darkness and firelit smokes, the fires tracing concentric arcs. Geryon tilted to one side and dropped in a slow spiral.

The scarlet waterfall dashed itself to foam and spray on the rocks. Billy was squeezing the breath from me, but I didn't complain. I heard whimpering noises being squeezed from him.

We touched down.

I said, "Your first flight, Billy?"

"Yeah."

"We're down. You can let go."

"Yeah." He unlocked his arms in stages and climbed down on shaky legs. I followed.

Geryon floated up a few feet and hovered. "Hey, Benito," he called. His voice was full of artificial cameraderie, more menacing than threats. "Why is it, Benito, that the people you travel with don't ever come back?" The monster lifted toward the sky, chortling.

Carefully casual, Corbett asked Benito, "You've been here before?"

"I have rescued others," Benito answered.

"How many?"

"Six. One at a time. No matter how many come with me at first, no more than one at a time ever seems to reach the exit point. Perhaps this time we will be more fortunate."

"What happens to the others?" I asked.

"Why did you come back?" Corbett demanded.

We'd both spoken at once, and Benito chose to answer neither of us.

"Have you seen the exit?" Corbett asked.

Benito's voice was colorlessly grim. "Yes."

"And gone beyond it?"

"No. But it follows Dante's

route, which leads to Purgatory. I came back to find others in need of guidance. Do you object, Allen Carpentier? Should I have left you in the bottle?"

"Hey, hey, hey!" Billy was dancing with impatience. "If we're going, let's go! What's all the jawing about?"

Benito nodded and led us off downslope. We felt exposed on level ground, and Geryon couldn't be the only flying thing. He hadn't reported us (had he?) but that was no guarantee that something else wouldn't. We moved swiftly across what seemed to be solid rock, always downhill, further into murk and gloom, until we came to a cliff edge.

There was a ditch in front of us, seventy or eighty feet deep and perhaps twice that wide. It was divided in the middle by a low wall of rock. Just off to our left was a passageway in the dividing rock wall. The divider was low enough that we could see over it, lower than the height of a normal man—

—and the ditch was full. Masses of humanity moved in a standard traffic pattern, all hurrying along, not quite running, leftbound on the far side, rightward on the near side. They moved *fast*.

They moved fast because there were beings with whips urging them along. It took a moment for that to register.

Okay, Carpentier, you're in Hell and there are demons in Hell. There were things on the red-hot wall that might have been demons if you could have seen them clearly through the fog. There's Geryon, certainly a monster. Of course

Big Juju can make demons.

But I hadn't wanted to believe it.

Now I was looking at them. They were blackskinned rather than the red I'd expected, and they were at least ten feet tall. They had horns and tails and were uglier than I could have imagined. They used whips twice as long as themselves. They screamed at the laggards:

"Along with you, Big Morris, there's no ass to sell here!"

"Git along, little dogie, git along, git along . . ."

Wails and groans rose from the pit, and screams of pain and rage. Snap! Crack! Chunks of flesh flew from the backs of those who slowed down.

"Who," whispered Corbett. He ran out of voice and had to try again. "Who are they?" He was frightened, and why not? I was scared out of my mind. The demons were looking up at us—

—but they went back to their tasks, gleefully lashing the crowd. I recognized one of the runners. He was a famous movie director-producer, idolized by millions when I was younger. He was on the near side, but as he reached the passageway in the dividing wall the demon stationed there lashed him until he went through and joined those scurrying in the other direction.

I'd never met him, but I knew who he was. And I knew who these people must be.

Benito confirmed my suspicions. "Panderers on this side, seducers on the other. Come, we must find a bridge." He turned left and we followed uncertainly.

"I . . . was a seducer," Corbett said uncertainly.

I remembered the convention atmosphere and what happened the night before I died. "Me too."

Benito snorted. "Did you ever have a woman against her will?"

"No—"

"Or make her drunk, or drug her?"

"Well—" Did pot count? "Nobody who didn't know what to expect."

"Never had to," Corbett said matter-of-factly.

"Or use threats of force?"

"Don't be silly." Corbett resented the implication. "I told you, it wasn't necessary."

"The Italian does not properly translate as your English seducer, which is hardly more than casual fornication," Benito said seriously. "I think perhaps the better word is 'rape'."

Now we could see the bridge ahead of us: a stone arch. It looked very old.

"Jerry!" A voice called from the pit. "Jerry! Come on down, Jerry. You *belong* here!"

It stopped Corbett cold. He looked down into the pit. "Julia?"

"Come on down, Jerry. Share everything with me. You taught me how, Jerry—"

"How can a girl be a rapist?" I demanded. She was, or had been, quite pretty, but now her face was distorted in pain and exhaustion. The demons were watching her stand there as she panted and shouted up to Corbett, and they didn't interfere.

"Deceit. Fraud," said Benito. "Those who induce others to what they know is wrong, as well as those who force their will on others."

I turned to Corbett and *Shut up*,

*Carpentier! None of your business*  
closed my mouth.

"You taught me everything, Jerry," she was calling. "I could still love you. Come down with me. Where else can you go now?"

"Out! Down to the center and out!" Corbett screamed to her.

The demons howled maniac laughter. The girl laughed with them. "Oh, Jerry, do you *believe* that? Don't you know that the deeper you go, the worse it is, and you can't ever go back, and you can't get out? It's worse down there, Jerry. Wait till you see who's below us! Here you have *me*, Jerry. Stay where you belong. There's no escape down there. Don't you know what's carved on the gates of Hell, Jerry? All hope abandon!"

"I'm not afraid of what's below!" Corbett was getting hysterical. "I never did any of the things they punish you down there for—"

She laughed again. "The only perfect man who ever lived! Are you *sure*, Jerry? Then why do they let you GO there? And what makes you think you'll get justice anyway? Come down with me before its too late to HYEEEE!"

The demons had called time on her. Crack! Snap! The whips sounded like popcorn popping. Julia sprinted, screaming with the rest. The flesh of my back rippled. I wanted to shut my ears.

"Come." Benito took Corbett's arm. "Come. Do not let her seduce you again."

"Uh?" Corbett looked at Benito as if he'd only just met him. "It did happen that way, now you mention it. Or did it? Maybe I do belong in that pit."

"If you do, you will be there. For the moment you are not, ergo—come along."

We walked in silence, each wrapped in his own thoughts. What if the girl were right? Were we plunging deeper and deeper, never to return? What was below us? Had I committed any of the appropriate crimes? "Benito, what's ahead?"

His dry lecture voice couldn't mask the screaming as we walked the rim. "No more!" "Not again!" "Wait, I'm in the wrong place!" "It was just *one* book, just one, I *needed the money!*" "You big ugly sonofabitch, you—" Crack!

"Of the ten *Bolgias*—canyons—of this circle of Hell, this is the only divided one. Each canyon is crossed by a bridge, except that all the bridges are down across the sixth canyon. We must descend into it. It will be no problem."

"Benito, how in God's name can you ignore those screams?" Corbett demanded.

"They have no more than they deserve," Benito said simply. Either he hadn't the empathy of a turtle, or . . . or what? "Now, we will have trouble at the fifth Bolgia. It is the pit of grafters, and the demons are on the rim, not down in the canyon."

"Ugh." I'd forgotten most of the Inferno, but I could never have forgotten that image: a troop, an army, of devils, ill-mannered and sadistic, a military organization of ugly hate. They'd almost got Dante despite his safe-conduct. "What's after this circle?"

We had reached an arching bridge of rough stone. It had no handrails and was about ten feet

wide, a slender arch above that pit of screaming runners. It sloped up so steeply that I dropped to all fours to climb.

"Jerry! Come down, Jerry!" It was the girl again. Corbett stiffened.

"What's next?" I prompted Benito. "After the ten canyons what will we find?"

"Very little," Benito answered. "The great ice plain, where traitors are punished. Those who betrayed their blood kin or their benefactors."

"Not me," Corbett said. He seemed to feel better. "And then?"

"We cross to the very center. There is a hole. We crawl through it, past the center of the world, and find ourselves climbing up again."

"And I can believe as much of that as I like?"

"Certainly. Why should you not believe it?" Benito was genuinely puzzled.

"It's nonsense," said Corbett. "We'd be in free fall by the time we got there."

"Jerry!"

Corbett shuddered. The voice floated upward again. "Don't be a fool, Jerry. It's *bad* down there at the center. And they *never* let you out."

"Did I really put her there?" Corbett wondered. "Maybe I have betrayed a benefactor. She was kind to me and—"

"Come on, no woman's worth what they're gettin'," Billy said. "We stick together. I never let a buddy down in my life, and I'm goin' down to the center. Now come on."

Corbett lost some of his tension. "If you're really Billy the Kid,

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that's right. At least, that's what the movies showed." He began moving again, over the arch of the bridge, and downward. "Benito, your description is still nonsense. Not only would there be free fall at the center of the Earth, but this isn't Earth to begin with. A cavity this size, under the Earth? Can you imagine the pressures? And we'd get seismograph readings on it with every earthquake. No, we have to be somewhere else."

"Sure," I said. "Infernoland. Somebody built it, following Dante. But the geography's been the same as the Inferno all the way so far, so what do we care if it's an artifact?"

"It is an artifact," Benito said, "in the sense that God designed and built it."

"Okay," said Corbett. "I was never a good atheist. Not a churchman either. Still, Benito, I've seen designs for bigger structures than this. Bigger than Earth, for that matter. Our real problem is, did Dante really see this place himself? And can we trust his reports?"

That was a good question, but I

had a better one. How far could we trust Benito? He had never mentioned earlier trips.

Just how did Benito get back uphill after those trips? How did he earn this privilege of running free through Hell? Geryon had said 'we' when speaking of both himself and Benito. 'We who serve God in Hell.'

Benito was an unlikely angel . . . and Geryon an untrustworthy witness, I reminded myself. But this was the Devil's realm, and Benito wandered at whim.

All right, Carpentier: just what is the punishment for a soul who defies God's final command? God or Big Juju, I had plenty of evidence that He was vindictive. He put me in the Vestibule, and I violated my sentence. Minos warned me. Is this the final retribution against Carpentier? To go even deeper into Hell, with no way back, to find my own level and have it worse than He condemned me to?

Or. Suppose this really is Inferno-land, a bigger and more powerful Builder's playground. Why would the Geryon-type engineers have built anything *but* the Inferno? They clearly enjoyed seeing humans suffer. Would they get a similar kick from human pleasure? All the professors told me the Inferno was by far the most interesting of the three books of the Divine Comedy.

Benito was talking again. "I have always assumed that Dante made his trek in a vision. When he woke he had forgotten many of the details. He filled them in with research in theology and dogma and philosophy and natural history and with his own whims and prejudices

and special hatreds. But the basic vision was sound and true. Be careful here."

The bridge dropped steeply at the end. The inner rim of the trench was twenty feet lower than the outer. We went down backward. The lip of another pit was a hundred yards away. A cacaphony of sound rose from it. We stopped for a moment.

"For instance," Benito said, "Dante's work gives the impression that he met large numbers of Italians—"

"Sounds perfectly reasonable to me," said Corbett. We tried to laugh, but this wasn't a place for laughing.

Benito merely continued as if he hadn't heard. "Improbable numbers of Italians. Large numbers of famous ancients. He met writers, poets, politicians, but no Hottentots, Esquimaux, Askaris, or American Indians. This seems unlikely."

"Then you don't trust Dante after all?"

"Jerry, that was not my point."

I said, "Benito, we've met an embarrassing sufficiency of Americans."

Billy laughed. "Plenty on the island, too."

Benito was startled. "It is true. And Hilda Kroft and I met Germans. And—"

"Man tends to notice his own folks," said Billy. "Let's get moving."

We angled toward a bridge spanning the next ditch. Benito still looked disturbed. Why? *That disturbed me.*

The smell stopped us joltingly at the second pit. It was like being

dropped into a sewer. We didn't even try to look over the edge.

"Who's down there?" Billy asked.

"Flatterers," Benito said shortly, and turned toward the bridge.

We followed. "I don't get it," Corbett said.

"In every place of power, throughout all time, the rulers have been surrounded by flatterers. In many places flattery has been the path to power and wealth. In others it is only a good living. Yet everywhere the flatterers tend to push aside the men of real wisdom. Flattery is so much safer than telling unpleasant truths."

"Not in America," said Corbett.

"This I doubt," said Benito. "But then I suppose that you would know best."

"Never buttered up the boss? I sure have," said Billy.

I felt uncomfortable. What was I doing at the moment I died but flattering the fans? I glanced over at Corbett and he looked no better. Flattery? We'd all tried it. What did they do to flatterers?

We clustered at the bridge approach and stood looking at it. The smell was thick as putty. I could feel it clinging to me and I squirmed. Corbett said, "How are we going to cross that?"

"Fast," I said. "Don't breathe." I didn't move. I hadn't worked up the nerve.

"Come on, pals!" Billy hit the bridge at a dead run. As he went over the arch and disappeared from view, we heard him yell. The other side of the bridge would be steep. I hoped he'd rolled to the end and not over the edge. I wasn't ready to

dive in after him, and I didn't hear anyone else volunteer.

"Billy?" I shouted. No answer.

"He's all right," Corbett said. His voice was hollowly reassuring. "Sure he is."

We looked at each other. We took deep breaths. We scrambled up the arch, and when we could stand, we ran.

Was Billy down there? I made the mistake of looking from the top of the arch.

Down into a river of shit, chest-deep. A respectable crowd waded through it.

Disgust can freeze you as solid as fear. At my side, Corbett stopped to look where I was looking. He made a retching sound, took my arm and tried to pull me on. I couldn't move. I'd recognized someone I knew.

I called down. "George!"

Heads turned up. They were disguised by what was smeared across the faces, but that was George, all right. I tried to remember his last name, and couldn't.

But he knew me. He shrank away with his sticky arms hiding his sticky head.

Benito had come back up the bridge. "Billy is safe." He spoke with the pinched voice of a man holding his breath. "Who was that?"

"An old friend. An advertising man, wrote fiction in his spare time. Not very good stories, but he wasn't a bad guy. How did he get here?"

"Immoderate flattery. There is no other way to reach this pit. Allen, Jerome. No profit in standing here; you cannot enjoy the view."

Immoderate flattery? It fit, in a way. In Big Juju's way. Most advertising is immoderate praise of a product or its users. But like every other torture I'd seen in Hell, it was just too damned much! I wanted to tell George . . . what? That he'd been wronged? That I'd get justice for him no matter what it took? That I couldn't save him and I couldn't save myself and everything was useless because we were in the hands either of a cruel God or heartless aliens? I don't know. But I'd remembered one of his own ads, and I shouted it down to him. It was not to mock him! Only to get his attention!

"You deserve to belong to the Xanadu Country Club!"

The response was an explosion of voices. Smeared stinking heads rose, mocking voices called. "The wethead is dead!" "Aren't you glad you use Dial? Don't you wish everybody did?" "I'm Glenda! Fly me!" "Hazel, it turned blue!" "Always have . . . always will!"

And we three who peered into the moat, we saw where the shit came from.

Another macabre joke. Every one of them had been fitted with a second anus. It became apparent only when they tried to speak.

Corbett bent double, heaving, a ghost trying to expel emptiness from the ghost of his belly. I tried to help him, but he backed away fast. He didn't want to be touched. The convulsions went on and on.

I tried to turn away from the edge, but it was too late. George screamed up at me, in agony. "Allen! Why?"

"I'm sorry!" I should have left him alone.

Benito spoke in an actor's voice, calm but carrying. "There is a way out of Hell."

He got insults and laughter, but a few listened.

"You must climb the pit. Cooperate if you must. It will be hard, but you can do it if you try long enough. Then you must move inward. The route to Heaven is at the center of Hell."

Smeared faces turned away. George stayed to answer. His laugh had tears in it. "Me, in Heaven? With shit dribbling down my chin? I'd rather stay here."

Another called. "Listen, when you get there, tell Him. Tell God we will praise him day and night! I have written a new hymn to his name! Tell Him!"

Benito turned sadly away.

I looked for Corbett—and found him at the outer end of the bridge. He was crying and hiccupping and trying to run. I shouted, "Corbett! Wrong way!"

He turned. "No chance! I don't belong here! I'm supposed to be in the winds!"

"You'll never get up the cliff."

"I will! Somehow, I will! I belong up there, not down here with—" He flapped his arms helplessly. Corbett had no word for these thoroughly damned souls with whom Corbett would not associate. He went away from us.

Billy was waiting at the inner end of the bridge. He watched us come down, then, "Where's Jerry?"

Benito shook his head. "Pride. He was too proud to stay."

TO BE CONTINUED

GALAXY



# GALAXY

## BOOKSHELF

Spider Robinson

*The Syndic*, Cyril M. Kornbluth, Avon/Equinox, 223 pp., \$2.45

*Strange Relations*, Philip Jose Farmer, Avon/Equinox, 189 pp., \$2.45

*Early Del Rey*, Lester Del Rey, Doubleday, 424 pp., \$7.95

*A Requiem For Astounding*, Alva Rogers, Advent, 224 pp., \$2.45

*The Ray Bradbury Companion*, William F. Nolan, Gale Research, 339 pp., price unknown

*Combat SF*, edited by Gordon R. Dickson, Doubleday, 204 pp., \$6.95

*Final Stage* edited by Edward L. Ferman and Barry N. Malzberg, Penguin, 284 pp., \$2.50

*The Jaws That Bite, The Claws That Catch*, Michael G. Coney, DAW, 191 pp., \$1.25

*Man The Fugitive*, George Alec Effinger, Award, 172 pp., \$.95

*Escape To Tomorrow*, George Alec Effinger, Award, 158 pp., \$.95

*2018 A.D. or The King Kong Blues*, Sam J. Lundwall, DAW, 160 pp., \$1.25

*The Shattered People*, Robert Hoskins, Doubleday, 182 pp., \$5.95

*The Stars My Destination*, Alfred Bester, Berkley, pages unknown, \$1.25

### R EMEMBER NOSTALGIA?

How could you forget, for that matter? Friends, contemporary civilization is in the grip of the greatest wave of yearning for the (vaguely defined) Good Old Days that this weary planet has ever seen, and I for one have been finding it

mostly a pain behind the lap. Hollywood offers me *Paper Moon* and *Summer of '42*; radio offers me Sha Na Na and Billie Holiday out-takes; television offers *Sgt. Bilko* and *You Bet Your Life* re-runs (pardon me, encore performances); theaters offer Bogie revivals and Fields revivals and...

And science fiction offers me the Golden Age.

When was this Golden Age? Well, it depends on who you ask (who was it who, asked to define the Golden Age, said "fourteen"?), but the precise dates don't matter. The point is that SF too can now be inserted in the classic refrain, "They don't make \_\_\_\_\_ like they used to!" Everyone's going back to the roots, and if that makes sense to you, buy your girlfriend(s?) a bouquet of roots on your way home tonight.

Put down that axe, sir, and let us discuss this like gentlemen. I will concede that we live in decadent times—they *don't*, for instance, make guitars like they used to. Every area in which individual craftsmanship and professional pride have been phased out has declined, inevitably. But SF is not produced by an assembly line of sullen transients, much as it seems that way at times, and by its nature it cannot help but improve. Mass Man's output gets steadily worse, but things made by and for individuals *always* get better. No, they don't write 'em like *Skylark* any more—and no one

in their right mind would want them to.

To my mind the most astonishing thing is just how many of those pioneering stories of yesterday stand up under re-examination. Trailblazers expect the gouges they carve into trees to be supplanted some day by highway signs, and SF in its pseudoprophetic aspect is uniquely vulnerable to obsolescence. And yet, even if *Blowups* didn't *Happen* the way Heinlein wrote them, his story is still a gem. Marvelous!

The bulk of the Golden Age's "forgotten masterpieces" were not forgotten but disremembered, the way you've suppressed the memory of the first time you had sex. The amazing, the unexpected, the delightful thing is that so many of them *are* worth remembering today.

**C**ASE IN POINT: *The Syndic*, the first I've seen in an "SF Rediscovery" series from Avon/Equinox. I had vague recollections of *Syndic* when it arrived in my mailbox—and unfortunately they were confused with those of a particularly rotten *Star Trek* episode with the same basic thesis. I'm glad I re-read it.

Cyril Kornbluth took a far-fetched premise (Government has been supplanted, nationwide, by Organized Crime) and built an incredibly rich and incisive adventure novel around it. It must now be read as fantasy: the '50s gangsters Kornbluth knew did not take over the government—more the other

way around. (O beleaguered common man: even the thieves have sold you out.) But the Rediscovery series cover-painting strikes exactly the right note of self-mockery, allowing the premise to be painlessly swallowed—and in return for suspending your disbelief, you get superb entertainment. Stylistically and in richness of character, it stands alongside the best of contemporary SF, and sneers at the run-of-the-mill stuff. Experiencing it again gave me, for the first time in years, that exhilarating almost-vision of the kind of thing Kornbluth would be writing had he lived. He died untimely, and I'm delighted to meet one of his children again.

*Strange Relations*, on the other hand, Philip Jose Farmer's entry in the Rediscovery series, was not as satisfying to me. I missed the stories of which it is comprised when they first appeared in the '50s (I was five at the time, just discovering Heinlein juveniles), but I didn't miss them, if you follow me. Of the five tales (lumped together because all of them had to do with sexual or sibling relationships of one sort or another), only "Father" impressed me at all. "Mother" and "Daughter", the only two stories actually interrelated, struck me as sophomoric—do you really want to hear a dirty joke about an *alien*? Even if a human is involved?

The same objection applies to "My Sister's Brother," save that

the w-e-i-r-d nonhuman sex is played for horror and pathos instead of laughs. Reminded me of the hunchback in *Candy*. The remaining story, "Son," is well-crafted, but minor—although it was pleasant to see a hero missing clues, failing to spot inconsistencies, and generally behaving more like a real human being than like an epitified Hercule Poirot.

"Father," however, is a masterful blend of hard SF and theology, with skillfully *unstereotyped* priests (a literary feat unequalled since). And what do I know—maybe you do like Dirty Old BEM jokes.

**M**ORE GOLDEN AGE—and here the creaking gets a little louder. Well it might: we're not talking 1953 now, we're talking 1938-51.

The stories in *Early Del Rey* were written in the dozen years it took Lester to realize that he was supposed to be a full-time writer, beginning with the very first he ever wrote. If this bodes ill, remember also that none of these stories have been anthologized before (near as I can figure from the appended checklist). You won't find "Helen O'Ley" here, or any of the sure-fire classics from the period specified. These are the leftovers, and alone, bare-naked, I'm afraid a substantial number of them are of largely historical interest.

But what makes the book worth twice its purchase price are the introductions! Lester sandwiches each

piece with recollections, reminiscences and commentary, turning the work into the professional memoirs of one of science-fiction's most colorful personalities. They only created the Grandmaster Nebula this year (for Robert Heinlein, and long overdue), so Lester may have to wait a year or two for his. But it will be an utterly finite wait.

You can save the critical knife—Lester cheerfully acknowledges every flaw, absurdity, goof and cliche in these stories, apologizing (only) where he deems it necessary. In between he will entertain, enlighten and instruct you—in the imitable Del Rey manner. The book gave me much pleasure, and a valuable perspective on some highly controversial years and people I wasn't around to see.

**I** GET ANOTHER perspective from *A Requiem For Astounding*, written by and for devotees of *Astounding* magazine in its Golden Age, defined by author Alva Rogers as January 1930 to January 1960 (when the name changed to *Analog*), the period the critics will probably some day pick as THE Golden Age. If you are not familiar with at least some of the stories in question, you'll feel like the new prisoner listening to the old lags calling out the numbers of the jokes in *The Only Joke Book In The Prison Library* and laughing like hell. *Requiem* is only a chronological thumbnail sketch, an expanded in-

dex. Some stories are mentioned only by name, some are capsule-described, none are described so as to bring them to life for a stranger. Rogers' purpose is only to stimulate the recall of those who did read those stories, as they came out—to re-evoke the *feeling* of what it was like to be a young *Astounding* reader in the '40s.

Which is entirely interesting, for indeed Heinleins walked the earth in those days, yea, and Asimovs. But an outsider must read between the lines, and with great difficulty. S. J. Perelman once sold an utterly hilarious satire consisting of a straight recital of the plot of one of the "Captain Future" stories that Rogers remembers with pleasure—turkeys walked the earth in them days, too. The artwork in particular is ghastly to the modern eye, glorious in Alva's. If you're not a hardcore devotee of either *Astounding* or the field in historic general, you'd better pass this up—although John Campbell's "introduction" (he called it a rebuttal) ought to be tattooed on the foreheads of everyone in First Fandom.

**O**NE MORE LOOK BACKWARD and we're done. *The Ray Bradbury Companion* by William F. Nolan is another labor of love—the kind that makes people build shrines to Lana Turner or wait in an alley for twelve hours for a chance to rip Paul McCartney's lapel off. It is a shrine to Ray Bradbury, and as such

serves to support the contemporary suspicion that he's dead (at least as a writer of fictional prose).

Stephen Gaskin, a beatnik preacher of great wisdom, genuine compassion, and a large and growing following throughout the country, tells the story of a man who came to his door and asked permission to follow him around the clock and cassette-record and transcribe Stephen's every word and action for posterity. As he tells it, he shut the door gently and answered one of his wives' "Who was that?" with, "A temptation from the Evil One."

Would that Bradbury had been as astute. This thoroughly embarrassing *Companion* does contain some worthwhile things: a definitive Bradbury checklist, an "authorized" chronology of his life of which at least half concerns his professional career—the sort of thing a serious collector might actually desire ("One man collects stamps, another garters. Which is crazy? Or both? Or neither?"—Robert Heinlein)

But the vast bulk (and it sure is) of the book is a hideous amalgam

of. . . . all I can call them are *souvenirs*. There is, for instance, an enormous selection of *facsimiles of original manuscripts of unpublished works*. Did you get that? You're buying hand-written copy that a professional couldn't sell to *anyone*. Along with random pages from later-shitcanned versions of *Moby Dick*, photostats of the title page and dust jacket of every book Bradbury ever published (world-wide) (including re-issues), articles from his high-school newspaper, doodles for God's sake—pages of the stuff. A map of his home-town, *hand-drawn*. . . . I can't go on.

Oh yes—it comes in a box.

**T**HANK GOD—at last we get to brand-new, never before in print, modern SF (what do you mean, "I'm running out of space"?) First up is *Combat SF*, a compilation by the eminently qualified Gordy Dickson. Whether you're a war-story buff or not, hawk or dove, you'll be delighted at this multitude of perspectives SF has thrown on man's oldest outdoor sport. Gordy's made an excellent representative

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selection ranging from Keith Laumer's "The Final Command" to Gene Wolfe's "The Horars of War," and including Poul Anderson's superb classic, "The Man Who Came Early." Also represented are Ben Bova & Myron R. Lewis, Joe Hensley, David Drake (a Hammer's Slammers story), Fred Saberhagen (a Berserker story), Joe Haldeman (not a Forever War piece), Harry Harrison, Jerry Pournelle, Joe Green, and Gordy himself (not a Dorsai story, dammit). Recommended without reservation—there's none of that love and sex crap in it anywhere.

**F**INAL STAGE has an ambitious premise; editors Ferman and Malzberg selected what seemed to them The Twelve Themes Of Science Fiction, selected a Name author associated with each Theme, and asked him or her to write the "ultimate" story of its type. On the strength of this, they subtitle the book "The Ultimate Science Fiction Anthology" and charge two and a half bucks. This is called leading with your chin, or Harlan's Folly.

For my money the only authentic "ultimate" story comes from Isaac Asimov, who to my astonishment and horror seems to have actually written not only the ultimate robot story but the last of the U. S. Robots stories—at least, the chronologically last (although he advises us in his afterword not to bet on it). But none of the other

yarns bear any real claim to ultimateness (ultimation?). Well, OK, Harlan Ellison, under the heading of "Future Sex" (along with Joanna Russ, to foil charges of sexism) does give us what appears to be literature's (if not reality's) first machine-fucker—he obviously gave the assignment serious thought. But it's a lousy story.

Not that the rest are. Tiptree is up to his usual high standards, as are Harry Harrison, Fred Pohl, Poul Anderson and others. It's a generally good book that you'll mostly enjoy—but Ferman and Malzberg shouldn't make premises they can't keep.

**T**HE JAWS THAT BITE, *The Claws That Catch* irritated me immensely. I finished it, but had to suppress the impulse to fling it across the room several times. It concerns "spare-parts people," prisoners paroled as bonded servants and mobile organ-banks to the idle rich on an unnamed future world that seems to exist in a vacuum (well, I suppose they all do in a *sense*, but . . .). The actions of absolutely every one of the individuals and groups are implausible and inconsistent; the protagonist is the most ineffectual, unmotivated chump imaginable; the background society is inexplicably psychotic; the "land sharks" and other mutant pets are unbelievable; the plot is aimless nonsense; the ending is unsatisfactory; and the prose limps. I have

heard it said, by Theodore Sturgeon among others, that Michael Coney is a "Good writer becoming a very good one." I can't honestly disagree—this is only the second of his books I've seen, and the only recent one. But so far I have no evidence at all to support Ted. Beware the Dub Dub Book, and shun the Buckanaquatasnatch.

**I**'D LIKE AT THIS TIME to institute a custom of occasionally capsule-reviewing books that I don't really have room for, but which don't rate being entirely ignored (and some that do). I'll invoke the custom only when it seems appropriate, as it does now:

*Man The Fugitive and Escape To Tomorrow*: reissues of *Planet Of The Apes* stuff based on the now-extinct TV series based on the movies based on the book based on a nightmare Pierre Boulle once had, and better than you think. It's sad to use a talent like George Alec Effinger adapting the works of his inferiors, but he improves them considerably in the process. Good honest work by a pro—recommended light reading.

*2018 A.D. or The King Kong Blues*: "The bestseller that shocked Sweden" is not going to shock America. It reads a little like an inept imitation of *Stand On Zanzibar* as Phil Dick would have written it. Lundwall's pretentious afterward about how This Is A Work As Much Of Fact As Of Fiction, com-

plete with a chapter-by-chapter bibliography citing sources like *Newsweek*, is the final kiss of death. Feh.

*The Shattered People*: Robert Hoskins is a capable and accomplished editor and short story writer. This appears to be his first novel (at least no others are flyleafed), and a good one, a solid, unspectacular, eminently readable tale of political intrigue in far-future Earth and of the shattered victims of the Establishment's mind-wipe on a prison-planet dumping ground. I especially like the alien wind dreamers, gentle and warmly memorable creations. Not great—but good.

With next month's column, I hope to return to coverage of more new books (unless they keep deluging me with reprints), and nostalgia will be (I hope) only a memory. Oh Lord, that reminds me: run out and buy the reissue of Alfred Bester's *The Stars My Destination* (a Berkely paperback) if by some chance you've never read it. Far too long out of print, it is an unquestioned classic with the uncanny knack of seeming like it was written ten years from now. I've managed to lose the copy they sent me or I'd have remembered sooner. Reading Bester has some of the salient aspects of juggling live chain-saws, and this is one of his all-too-rare masterpieces.

Forget my typewriter if it wasn't nailed on. ★

# OVER DOSE

*Mind-raped by a giant, extra-  
terrestrial poached egg, this  
crazy Terran didn't know  
when to quit!*



# SPIDER ROBINSON

MOONLIGHT SHATTERED on the leaves overhead and lay in shards on the ground. The night whispered dementedly to itself, like a Zappa minuet for paintbrush and tea-kettle, and in the distance a toad farted ominously.

I was really stoned.

I'd never have gotten stoned on sentry duty in a real war, but there hadn't been much real fighting to speak of lately (this was just before we got out), and you have to pass the time somehow. And it just so happened that as I was getting ready to leave for the bush, a circle of the boys was Shotgunning.

Shotgunning? Oh, we do a lot of that. It works like so: the C.O. ( . . . "or whomever he shall appoint . . . ") fills a pipe from the platoon duffle bag, fires it up, takes a few hits to get it established, and then breaks open a shotgun and inserts the pipe in one of the barrels. He raises it to his lips and blows a mighty blast down the bore, and someone on the other end takes an *enormous* hit from the barrel.

The C.O. then passes the Shotgun . . .

So as I say, I was more ruined

than somewhat as I contemplated the jungle and waited for my relief. Relief? Say, you can take your meditation and your yoga and your za-zen—there's nothing on earth for straightening your head like a night in the jungles of Vietnam: Such calm, such peace, such utter tranquility.

Something crackled in the bush behind me, and my M-32 went off with a Gotterdammerung crash two inches from my left ear. As I whirled desperately about, Corporal Zeke Busby, acting C.O. and speed-freak extraordinaire, levitated a graceful foot above the surrounding vegetation and came down rapping.

"Yas indeed private yas indeed alert and conscientious as ever yas and a good thing too a good thing but if I may make so bold and without wishing to appear unduly censorious would you for Chrissake point that fuckin' thing somewhere else?" Corporal Zeke had once been a friend of Neal Cassidy's, for perhaps just a bit too long.

"Sure thing, Corp," I mumbled, shifting the rifle. My eardrum felt like Keith Moon's tom-tom.

"Yas and a signal honor a signal honor my man your gratitude will no doubt be quite touching but I assure you before you protest that I consider you utterly worthy worthy worthy to the tips of your boogety-boogety shoes."

A signal honor? He could only mean . . .

"I have selected you from a field of a dozen aspirants to make the run to Saigon and cop the Platoon Pound."

I was overwhelmed. The last man so honored (a guy named Milligram Mulligan) had burned us for two bricks of Vietnamese cowshit and split for the States—this was indeed a mark of great trust. I tried to stammer my thanks, but Corporal Zeke was off again. ". . . situation of course most serious and grave without at the same time being in any sense of the word *heavy* as I'm sure you dig considering the ramifications of the logistical picture and the inherently inescapable discom-bobulation manifest in the necessary . . . what I mean . . . that is to say, we've only got five bucks to work with." His left eye began to tic perceptibly, almost semaphorically.

"No problem, Corporal Zeke. I've seen action before." Five was barely enough for a few ounces at Vietnamese prices, but the solution was simple enough—rip off a Gook. "What did you have eyes to score?"

"Yas well based on past performance and an extrapolated estimate of required added increment to offset inflation which some of these lousy bastards they smoke 'til their noses bleed, it seems that something on the close order of five bricks would not be inordinate."

I nodded. "You're faded, Corp. Get me a relief and I'll crank right

now." He didn't hear me; he was totally engrossed in his left foot, crooning to it softly. I put the M-32 near him gently and split. When the Old Man says "Cop!", you cop, and ask how soon on the way back.

**D**EEP IN THE JUNGLE *something stirred. Trees moved ungraciously aside; wildlife changed neighborhoods. A space was cleared. In this clearing grew a shimmering ball of force, a throbbing nexus of molecular disruption. It reached a diameter of some thirty feet, absorbing all that it touched, and then stopped growing abruptly. It turned a pale green, flared briefly, and stabilized, emitting a noise like a short in a fifty megavolt circuit.*

*With something analogous to a gasp, Yteic-Os the Voracious materialized within the sphere, and fell with a horrendous crash to the jungle floor a foot below. Heshe winced—well, not exactly—and momentarily lost conscious control of the pale green bubble, which snapped out of existence at once.*

*Yteic-Os roared hisher fury (although there was nothing a human would have recognized as sound) and tried to block the green sphere's dissolution by a means indescribable in human speech, something like sticking one's foot in a slamming door. It worked just about as well; the Voracious One nearly lost a pseudopod for hisher trouble.*

*This was serious.*

*Yteic-Os was ridiculously*

ancient—heshe had been repairing hisher third sun on the day when fire was discovered on earth. Entropy is, however, the same for everybody. Yteic-Os had long since passed over into catabolism: hisher energy reserves dwindled by the decade.

This jumping in and out of gravity wells was a hellishly exhausting business; for centuries Yteic-Os had sidestepped the problem by using the tame space-warp over which heshe had so laboriously established control. Now the warp was gone, galaxies away by this time, and Yteic-Os had grave doubts as to hisher ability to jump free unassisted.

This world would simply have to serve. Somewhere on this planet must exist a life-form of sufficient vitality to fill Yteic-Os's reserve cells with The Force, and heshe was not called The Voracious for nothing. Heshe extended pseudopods gingerly, questing for data on cerebration-levels, indices of disjunctive thought and the like. Insignificant but potentially useful data such as atmosphere-mix, temperature, radiation-levels and gravity were meanwhile being absorbed below the conscious level by the sensor-modules which studded Yteic-Os's epidermis (giving himher, incidentally, the external appearance of a slightly underdone poached egg with pimples).

A pseudopod like a mutant hot-dog twitched, began to quiver.

Yteic-Os integrated all available data and decided ocular vision was called for. Hastily heshe grew an eye, or something very like one, and looked in the direction pointed by the trembling pseudopod.

Yes, no doubt of it, a sentient life-form, just brimming with The Force! Yteic-Os sent a guarded probe, yelped with joy (well, not precisely) as heshe learned that this planet was crawling with sentient beings. What a bountiful harvest!

Yteic-Os cannily withdrew without the other so much as suspecting hisher existence, and began patiently constructing hisher attack.

WELL, THE PLAN was simplicity itself: meet Phstuc My in a bar, demand to see the goods before paying, pull my gun and depart with the bag. Instead, I left without my pants. How the hell was I supposed to know the bartender had me covered?

So there I crouched, flat broke and *sans culottes*, between two G.I.-cans of reeking refuse in a honky-tonk alleyway, strung out and dodging The Man. It made me homesick for Brooklyn. At least the problem was clear-cut: all I had to do was scare up a pair of pants, five bricks of acceptable smoke, a hot meal and transportation back to my outfit before dawn. Any longer and Corporal Zeke would assume I had burned him, at which point, Temporary Cease-Fire or not, Southeast Asia would become de-

cidedly too warm for me to inhabit. I was not prepared to emulate Milligram Mulligan—ocean-going desertion requires special preparation and a certain minimum of cash, and I had neither.

The possibilities were, as I saw it, dismal. I couldn't rip off a pedestrian without at least a token weapon, and I was morally certain the two garbage cans contained nothing more lethal than free hydrogen sulfide. I couldn't burgle a house without more of the above-mentioned preparation, and I couldn't even borrow money without a pair of pants.

I sure wished I had a pair of pants.

A giggle rippled down the alleyway, and I felt my spine turn into a tube of ice-cold jello. I peered over a mound of coffee-grounds and there, by the beard of Owsley, stood an absolutely *dynamite* chick. Red hair, crazy blue eyes, and a protoplasmic distribution that made me think of a brick latrine. At the mere sight of this girl, certain physiological reactions overcame embarrassment and mortal terror.

I sure wished I had a pair of pants.

"What's happening?" she inquired around another giggle. *My God, I thought, she's from Long Island!* I decided to trust her.

"Well, see baby, I was makin' this run for my platoon, little smoke to sweeten the jungle, right? And, ah. . . . I've gone a wee bit awry."

"Heavy." She jiggled sympathetically, and moved closer.

"Well, yeah, particularly since my C.O. don't like gettin' burned. Liable to amputate my ears is where it's at."

She smiled, and my eyes glazed. "No sweat. I can set you up."

"Right."

"No, really. I'm General Fonebone's old lady—I've got connections. I could probably fix you right up . . . if you weren't in *too* much of a hurry." She was *not* staring me in the eyes, and I made a few hasty deductions about General Fonebone's virility.

"I'm Jim Balzac. 'Balz' to you."

"I'm Suzy."

Six hours later I was back in the jungle. I had a pair of pants, some four and a half bricks from the General's private stash, a compass, two Dylan albums and (although I was not to know it for weeks) a heavy dose of clap. I felt great, and it was all thanks to General Fonebone. If Suzy had not found life in Vietnam so boring, she would never have gone rummaging and uncovered the General's Secret Stash, a fell collection of strange tabs and arcane caps. She had induced me to swallow the largest single tab in the bunch, an immense purple thing with a skull embossed on it above the lone word: "HEAVY," and it appeared in retrospect to have been a triple tab of STP cut with ibogaine, benzedrine, coke and just a touch of Bab-O.

It might just as easily have been Fonebone's Own—the sensation was totally new to me. But it was certainly interesting. I experienced considerable difficulty in finding my mustache—which of course was right under my nose.

I could navigate without difficulty, after a fashion. But I discovered that I could whip up a ball of hallucinatory color-swirls in my mind, fire it like a cannon-ball, and watch it burst into a spiderweb of multicolored sparkles, as though an invisible protective shield two feet away walled me off from reality. With care, I could effect changes in the nature of the pulsing balls before they were fired, producing a variety of spectacular fireworks.

The jungle reared drunkenly above me. My outfit was straight ahead. I forged on, while in my darker crannies gonococcal viruses met and fell in love by the thousands, all unknown.

A particularly vivid splash of color caught my wandering attention; I had absently concocted a hellish color-ball of surpassing incandescence and detonated it. Its brilliant pattern hung before me a moment, as the rush took hold.

And then it very suddenly vanished.

I very nearly fell on my face. When I had my bearings again, I sent out another "shell." It burst pyrotechnically.

And as suddenly vanished. It made a noise best reproduced by

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inhaling sharply through clenched teeth while saying the word "Ffffffup!"; vanished down behind a small hill ahead, sucked downward in a microsecond—only a stoned man could have divined the direction.

Something on the other side of that hill was eating my hallucinations.

I moved to the left like a stately zeppelin, caroming gently from the occasional tree. But I had two anchors dragging the ground, and before I got fifteen feet a tangled root brought me down with a crash.

And just before I hit, I saw something coming over the rise, and I knew that my mind had truly blown at last.

Coming toward me was a sixteen-foot-tall poached egg with pimples.

And then the lights—all those lights—went out.

**Y**TEIC-OS MOVED from concealment, throbbing with astonished elation. No subtle attack was necessary, no cunning stimulus needed to elicit secretions of The Force from this being. Heedless of danger, it radiated freely in all directions, idly expectorating energy-clusters as it walked.

Then Yteic-Os gasped (almost); for as it became aware of himher, it assumed a prone position, and disappeared. That is, its physical envelope remained, but all emanations ceased utterly; sentience vanished.

*The Voracious One had no means of apprehending a subconscious mind. Such perverse deformities are extremely rare in the universe; heshe had in several billions of eons never chanced to so much as hear of such a thing. This led himher into a natural error: heshe assumed that these odd creatures emanated so incautiously because they had the ability to shut their minds off at will to escape absorption.*

*For, you see, thought is electrical in nature, and creative thought is akin to a short circuit, occurring when two unconnected thoughts are together to form a totally new pattern. And such was Yteic-Os's diet.*

*And so heshe made a serious mistake. Heshe stealthily entered the empty caverns of Private Balzac's mind to try and restimulate life. Meanwhile, Yteic-Os's own nature and essence were laid open to the soldier's subconscious. One of the few compensations humans have for being saddled with such a clumsy nuisance as a subconscious mind is that these distorted clumps of semi-awareness possess a passionate interest in survival. Balzac's subconscious remained hidden, probing, comprehending the nature of this novel threat. A nebulous plan of defense formed, was stored for the proper time. Yteic-Os searched in vain for Thought, while Thought watched him from ambush, and giggled.*

*Consciousness returned to Private Balzac with a jar and a*

*"WHAAAAAT!?!?" Yteic-Os, caught by surprise, flipped completely over on his back and rippled indignantly. This upstart would soon be only a belch—or something like one. The Voracious One licked his/her . . . well, you know what I mean.*

## **“W**HAAAAAT!?!?”

I was awake. Somehow it had all been sorted out in my sleep: I didn't exactly know what the poached egg was, but I knew what it wanted to do. I thought I knew what to do about it. I would absolutely refuse to hallucinate, and starve it to death.

But I hadn't reckoned with the Terrible Tab I'd swallowed. I simply could *not* stop hallucinating! Colored whirlwinds and coruscating rainbows danced all around me like a mosaic in a Mixmaster; my eyeballs were prisms. Slowly the creative force of my mind was leaking away, being sucked into the egg before it could feed-back and regenerate itself.

I was being drained of originality, of wit, of inventiveness, of all the things that make life groovy. I had a grim vision of myself a few years hence, a short-haired square working in a factory living contentedly in Scarsdale with a frigid wife and a neurotic Pekingese, stumbling over the *Cryptoquote* in the *Daily News* and drinking Black Label before the T.V. A grimmet vision I can't imagine, but I still missed it

when, with a sucking sound, it disappeared into the poached egg.

It was quickly supplanted by other visions, however—but from the past rather than the future. To my utter horror, I realized that it was actually happening: my whole life was passing before my eyes, in little vignettes which were *slurped* up by the creature as fast as they formed.

In spite of myself I began watching them. In rapid succession I reviewed a lifetime of disasters: losing my transmission at the head of the Victory Parade, getting bounced out of bed a hair before climax when I accidentally called Betty Sue the wrong name, being violently ill on two innocent customers of Howard Johnson's . . .

Wait! A light-bulb rather unoriginally appeared over my head (and was eaten by the poached egg). Howard Johnson's!!! My untimely nausea had come on my third day as a HoJo counter-man, a direct result of the genius of Mr. Johnson himself. Early in his career, Johnson had hit upon the notion of urging all new employees to eat all the ice-cream they wished, for free. He reasoned that they would soon become sick of ice cream, and hence cut employee pilferage from his overhead. The scheme had worked well for him—why not for me?

Desperately I rammed my forebrain into low gear and cut in the afterburner. I dug into the tangled

whorls of my cerebrum for all the creativity that heredity and environment had given me, and began to hallucinate as fast and as intricately as I could. I prayed that the poached egg would O.D.

**Y**TEIC-OS WAS CAUGHT in a quandary. *The Force was radiating from this rococo little entity at an intolerable rate, and the creature would not stop projecting! Too heavily occupied in absorbing the torrent of food to roll off hisher back, Yteic-Os was lying on the escape-valve, similar to a whale's spout, which lay in the center of hisher back.*

*The Voracious One screamed—after hisher fashion—and tried frantically to assimilate the superabundance of food, to no avail. Even as he/she thrashed, desperately seeking to free the escape-orifice, he/she swelled, grew, expanded more and more rapidly, like a balloon inextricably linked to an air compressor. He/she lost hisher egg shape, became round rather than ovoid, swelled, bloated to impossible dimensions, and—*

—the inevitable happened.

**A**ND WHEN I COULD SEE again, there was scrambled eggs all over the place.

I didn't hang around. Corporal Zeke was delighted to see me—it's embarrassing to have men under your command bumming joints from the enemy. But he was a little disappointed to learn that I only had

four and a half bricks.

"That's okay, Corp," I assured him. "You guys can have my share. I'm straight for life."

"What?" gasped Zeke, shocked enough to deliver the first and only one-word speech of his life.

"Yep. After what I went through on the way over here, I'll never get stoned again as long as I live. Poached eggs eating hallucinations, cosmic invasion, Howard Johnson—it was just too intense, man, just too intense. A man who could freak out like that didn't ought to do dope. I've had a few bummers before, but I know when I've been warned."

Zeke was stupified, but not so stupified as to fail to try and change my mind. In subsequent weeks he went so far as to leave joints on my pillow, and once I caught him slipping hash into my K-rations. But like I say, I know when I've been warned, and you can't say I'm stupid.

I live a perfectly content life now that the war is over. Got me a wife, a nice little one-family in Scarsdale that I'll have entirely paid off in another twenty-five years, and a steady job down at the distributing plant—I get to bring home unlimited quantities of Black Label.

But sometimes I drink a little too much of it, and my wife Mabel says when I'm drunk—aside from becoming "disgustingly physical"—I often babble a lot. Something about having saved the world. . . . ★

*"Give me death," cried the Empress.  
"Give me Life," whispered Death.*



STEPHEN UTLEY

# THE OTHER HALF

**I**N THE ONE CITY ON EARTH, a city that had known only morning, noon, afternoon and morning again for a thousand years, the Empress grew bored with the color and fragrance of her gardens. She had the flowers destroyed. Stunted, gnarly trees from the Amber Islands replaced the flowers. They held her attention for a time.

In a palace that had always known light, music and laughter, the Empress grew weary of gaiety. She ordered the bright tapestries taken down and the perennial revelers expelled. Coarse, black hangings were brought in, a close, dead silence filled the corridors, and the Empress was content with the novelty of gloom. For a time.

Then she called Laman to her side and said, "Give me a death, poetess."

"A death, Your Highness?" Poetess Laman was a small, round woman with a soft voice and a perpetually worried expression. She had not been feeling well lately; the Empress' recent behavior had seen to that.

"A new entertainment," said Her Highness. "This morning I have come close to something fresh, something new and different. I want a closer look at it. I want an entertainment based on death."

"But, Your Highness—"

"Nothing else is new in my life," the Empress said firmly. "I want to see something about death."

"But, Empress," Laman pro-

tested, "new surprises arrive every afternoon! Just last afternoon I inventoried a new shipload. All the treasures of the Redlands. Things to astound you, Your Highness, golden lizards, stones that sing, birds as small and delicate as insects—"

"Nothing is new," the Empress reiterated testily. "I'm bored, Laman. I now want a new entertainment."

"But the flying jugglers, the dance of crystals!"

"Your colors and lights and songs make me fidgit, poetess. Your entertainments have become dismal affairs."

Laman bowed her head. "I shall strive for better, Empress."

"Better what?" snapped Her Highness. "More garish colors? Brighter lights, louder songs? No, poetess, I do not think that such will remedy my . . . my restlessness. Give me a death. Show me what it is. Tell me what it's like."

Laman repressed a shiver, murmured assent and left as quickly as she dared. She spent several hours wandering through the gloomy palace, absorbed in her equally gloomy thoughts. There had not been a death in the palace in a thousand years.

**"T**ELL ME ABOUT DEATH," said Laman to her dead father, Alprex.

"It's been a long time since we last talked," answered Alprex, who manifested as an unwavering criss-cross pattern of greenish light

superimposed upon the surface of a shiny black jewel. The ovoid jewel, which was mounted atop a metal tripod on the terrace of Laman's apartment, hummed the dead man's words softly. "I had begun to wonder if I'd lost my novelty. I had thought death a forgotten subject. You make an odd request, daughter."

"The Empress has become interested in death, Alprex."

"Can immortals become interested in death?"

"Stop mocking me. Her Highness has fallen prey to boredom."

"She is tired of laughing. She has turned to ugliness in search of newness."

"How do you know?"

"I listen, Laman. The city is full of laughter, and it is all desperate laughter. The Empress isn't the only one who's bored. Nor is she the first to have succumbed to boredom. You're bored, too, daughter. How long has it been since you last took anyone to bed? When did the flavor and aroma of food, or any of those little baubles you constantly import for Her Highness, or your work, last excite you?"

"Tell me about death," Laman urged, pointedly ignoring her father's questions. "I have to show the Empress what it is."

"Why doesn't she ask her own dead?"

"She wants an entertainment; she wants the feel of death."

"In that case, let her forego the

pleasure of her next rejuvenation."

"Father!"

"Have I uttered treason? The jewel's soft hum did not alter in tone, but Laman knew that Alprex was teasing her. "Do not fret so, little poetess."

"What if what you said were to reach the Empress' ears?"

"Why, she would probably have me killed," Alprex retorted. "Be calm. I will mind my . . . tongue for your sake. And for my own, as well. I suppose I should admit it. I would rather be here than in . . ."

"Go on, tell me about death."

"I can't."

"I have to know. Her Highness must have her entertainment, and I have to know something about my subject if she's to be satisfied."

"Very well," Alprex said slowly. "Death is . . . vast, and yet it presses in so closely that it stifles me. It's dark. Deep."

"I need specifics!"

"There are no specifics," Alprex said, very sadly, though the jewel's hum did not change. "Death is all generalities. I can't describe it, cannot even hint at it. It's everything the living cannot imagine. The closest things the living ever had to death were sleep and space. And the night. I remember those things. We used to surrender consciousness in order to dream. We used to go out into space. We used to surrender the daylight. We had so much that you and the Empress and everyone else can't remember."

Laman said nothing. She gently pressed the palm of her hand against the jewel, though she knew that Alprex could feel nothing.

"Laman," hummed the pattern of greenish light, "there is too much happiness in the world for anybody to be truly happy. You have lost the dark side of life. The other half of your humanity. When will you forego the pleasure of rejuvenation?"

"When . . . perhaps when I'm as restless as Her Highness."

"Have the times been so interesting since my death, daughter? Has the world changed so much in a thousand years?"

Laman withdrew her hand from jewel. "You'd feel at home in it, Father. For a little while."

**T**HE CENTRAL FIGURE in the new entertainment was scarcely more than a boy, a slim, nervous youth dressed in a tight-fitting suit encrusted with tiny mirrors that caught the light and made the wearer burn as brightly as the sun. His face and hands had been painted white, with splotches and stripes of black, to simulate naked bones.

A figure of silver fire, the boy danced across the arena, paused before the throne and, flanked by his markedly drabber and older supporting players, executed a low, graceful bow to Her Highness. There was, however, not the least trace of servility in the boy's posture, and Laman cast a quick, apprehensive

look in the Empress' direction.

It was difficult to say whether or not the Empress was offended. Throughout the prelude to the entertainment's climactic sequence, she had all but slumped in her seat, obviously bored with the music and the symbolic writhing of the dancers. But the boy's oblique impertinence had not escaped her notice. Her Highness smiled very faintly, very fleetingly. Laman felt an uneasy satisfaction.

*Yes, the poetess thought, forcing her eyes to return to the blindingly bright boy, that caught her attention. That interested her. Disrespect. Something else that's new.*

The boy in the suit of mirrors turned to salute his troupe. Behind them, in the center of the arena, a meter-high derrick-like affair had been constructed of metal rods made in the shape of bones. The youth accepted two skull-topped scepters from his helpers, turned with an almost arrogant flourish and, as his somberly garbed supporting players began to sing a low, mournful song, danced lightly toward the derrick. He twirled the scepters in his hands, and blue lightnings flashed between the gleaming, blurring skulls.

The boy picked up speed as his intricate steps carried him closer to the derrick. His dance became a running leap, a somersault, the scepters spitting blue flame as the boy spun. He landed atop the derrick of metal bones and in the same

motion turned gracefully to face the Empress. Perched there like a jeweled bird, still twirling the scepters, he added his high but full-toned voice to the final chorus of the song. The dirge suddenly became a song of hope, of triumph. *Death the conqueror is undermined, Death the harvester is expelled from the land of the living, we mock you, we scorn you, we make you myth...*

The song ended. The scepters stopped spinning in the boy's hands. There was a brief moment of silence in the arena as the boy drew the extended skull-crowned rods up and made them arc toward collision above his head. Lightning touched skull to skull. Fused them together, and the boy, and the derrick, in a flash that was brighter than anything that had been seen in the sky for a millennium. Cymbals crashed. The troupe sang the epilog.

Laman gave the Empress an expectant glance.

"I am curiously dissatisfied," Her highness murmured.

Laman gnawed the inside of her cheek.

"It lacked something," the Empress went on. "I was intrigued by the pyrotechnical climax. But I'm not content. There must be more to death, poetess."

"Perhaps the choreography was awkward in places," Laman offered.

"Pah. I wanted the death, Laman. Not the frills." The Empress

gave her a hard, level look. "Your productions grow successively more ludicrous. You communicated precious little about death, precious little about anything. By the way, who was the boy?"

"I confess that I do not know," Laman answered, trying to keep her voice humble, not angry. "A clone, arrested in adolescence. I don't know if they're given names."

"He did afford me one moment of amusement," said the Empress.

"Perhaps if I were to re-think my whole approach to death, Your Highness. . . ."

"Do that, Laman. Do that. I want to *feel* death. I want to know more about it." The Empress regarded the actors in the arena. They stood at attention, facing her, awaiting dismissal. "There must be something you missed in your research. Try again, poetess."

"Yes, Empress," Laman said, closing her eyes.

**S**HE WAS ABSOLUTELY correct in her estimation of your production," Alprex said. "You've lost your touch, Laman. No, worse than that, you've gone from mere staleness to outright inanity. I think your dreams must be pallid ones."

"I never claimed to be your equal, Father!"

"Oh, but you were. Once. Long ago."

"I admit my shortcomings. You needn't patronize me."

"I'm not patronizing you. You're

beset with problems, and I'm trying to help you, not make fun of you." Alprex's laughter was eerily distorted by the ovoid jewel's hum. "You've done admirably in your time, just as I did admirably in mine. But there is a limit to inventiveness. It used to be that artists had too little time. Now they have too much."

"What are you talking about?"

"We lived and died quickly, Laman. Too quickly. We were born, we grew up and took our training. We worked furiously and feverishly, never losing sight of the fact that we could never get it all done before death cut us off. We were afraid. But we made use of the time we had."

"You're not making much sense, Alprex. I'm in no mood to play games."

"No games, daughter. Don't let your near-total failure undo you."

"There was nothing near-total about it."

Dead Alprex seemed to lose himself within his rock for a few moments. Then: "Laman?"

The poetess said nothing. She watched the colorful multitudes on the boulevard far below her window. Their noise, carried to her by updrafts, seemed hollow. She raised her eyes to the golden overcast, the cloud of atmospherically suspended particles which had held the day captive for ten centuries.

"Laman? Are you still there?"

"Yes, Alprex."

"You can only succeed by showing the Empress that the living can know nothing of death."

"Enough," Laman said irritably. "I'm tired of talking with you. I'm tired of everything."

"I know. But listen to me. Death has been driven out of the world, and with it have gone darkness and terror and mystery. I go back a long way, I remember many things. I remember the night. I remember darkness and sleep. I remember the terror of death. When I was a child, I was afraid of the blackness. I saw eyes in it. I found mysteries in it. And when the day would come, I would be happy. Do you understand?"

"No. Please be quiet, Father."

"Listen to me, little poetess. Listen to me. Why are you unhappy? Why has the Empress become fascinated with that which has been denied these past thousand years?"

Alprex seemed to pause for breath. "Because there is too much light in the world. Because people have forgotten the other half of being people. They miss *death* and *fear* and *night* and *wonder*, even if they can't remember the words. They miss being frightened of the unknown. *That*, daughter, is the only aspect of death which can be appreciated by the living. Fear of the darkness. Fear of what lurks there."

"Alprex. . . ."

"Give the Empress darkness, Laman. The ancient terror must lurk beneath the skin of immortals. Give

her light, nothing but light, and she will not even pause to reflect that she is alive. Give her night, and she will see eyes in the shadows. Give her the promise of death, the fear of death, the certainty of death, and her life will be considerably enriched. Life is meaningless without death. Day is meaningless without night."

Laman turned away from the city and slowly walked past the ovoid jewel on the metal tripod. As she was leaving the terrace, she heard Alprex call after her, softly.

"Come see me again, Laman. Soon."

She went to the Empress and told her what should be done, and Her Highness said *yesss*, softly, sibilantly, and it was done.

And as the mantle of light began to settle about the towers of the city, as the morning abruptly began to darken, and the people raised their faces in astonishment, Laman made her way back to her apartment and sat on the terrace, beside the metal tripod.

"You're crying," Alprex said after a long moment had paused.

"I'm afraid, Alprex. The lights are going out, and I'm afraid."

"Savor it, daughter. You'll want to remember it when the morning comes. A natural morning, and a natural day. And then, if the Empress has been sufficiently impressed, another natural night."

Laman suddenly became aware of screams within the palace, of

moans, of gasps, of shrieked prayers to gods for whom there were no names. She hugged one of her dead father's stout metal legs and felt her teeth going into her lower lip. She touched a finger to her mouth and stared at the blood, amazed.

"Do you see them?" Alprex murmured above her.

She looked up.

"Do you see them, Laman?"

She looked up, past the ovoid jewel, the shiny black jewel with the criss-cross pattern of light that was her father, to a greater blackness.

"I see them, Father," she said, sobbing. "I see them."

The sky was very dark, and it was full of eyes. She kept looking up.

"And now," said Alprex, "and now, the next step. Sleep. Sleep."

"I don't know *how*."

"Sleep. You can—the air you breathe has been cleansed, you will remember. Close your eyes, and let the darkness come into your head, and sleep."

Laman closed her eyes and lay on the terrace and wept to herself. After a time, she grew quiet and still.

The jewel hummed to itself. "And now, and now, the final step."

Dreams reigned in the one city on Earth, and death waited at the gates.

"Patience, friend," Alprex called. "A little at a time." ★



your congressman, by the way; just address your communication to: The Hon. So&So, The Capitol, Washington, D.C.

Dear Mr. Baen,

Two comments about the April "Forum".

First, that the solutions to the problems that plague us are delightfully abundant. However, the people who are empowered to apply these solutions are awesomely ignorant of them. Solutions are useless if the political system insists on appointing lawyers to office instead of individuals who understand. Period.

If everyone read science fiction, I believe the world's suicidal blind-spots would diminish. That is merely an *IF* (to borrow the title of that late-great mag), just as Fred Pohl's proposals are merely *short-term ifs*.

Secondly, the illustration you used for *FORUM*—it bothers me. Black stars, white interstellar space, a galactic Yin & Yang. . . that's intriguing enough. But a *weightless hour-glass*? Did the artist mean to imply that the "short-term solution" is as effective as a gravity-powered device in a weightless condition?

*Galaxy/IF's* flaw is that you can't read it without having to *think!*

Thoughtfully,  
Carla Sennett

1154 W. 120th St.  
Palos Heights, Ill. 60463

*That illustration was definitely a visually mixed metaphor that didn't work! (You would be amazed at how many sf-oriented people looked at it without catching the flaw in the ointment. . .) As for the substance of the article and the depressingly real official ignorance thereof, by printing such articles, in as entertaining a format as possible, we are doing what we can. It's easy to write to*



Dear Mr. Baen:

I read with great interest your editorial in the March issue of *GALAXY* in which you call for more stories of the "Let's step around it" type and fewer of the "Here we are in it" type. The reason that your comments caught my interest especially is that I have been speculating for some time as to why I find myself doing more rereading of old SF and less reading of new SF.

It seems to me that there is a certain lack of the exuberant vitality of earlier years. (I realize that this is an unfair oversimplification, but then, so is everything else I plan to say.) From what the critics have said and from my own observations, there are two explanations that seem most plausible. One is the tendency of SF to merge with the mainstream; the other is the very nature of the times.

The merging with the mainstream could be explained in part by the pressure on any ghetto dweller to escape into prosperous re-

spectability. The mainstream being much too sophisticated for exuberance or enthusiasm, science fiction must also remove these qualities if it is to merge. As a result much of SF seems to reflect a state of mind redolent of the smell of cooking cabbage wafting over the dump on a rainy day.

Combining with the pressure to merge is the frightening nature of the times. The problems are so real and so awesome that it is difficult to see any solution. Even in many SF stories that present a solution, the author first portrays a bleak situation. The solution is then tacked on as an afterthought totally out of line with the rest of the story. The writer can often be seen rolling up his sleeve preparatory to digging around in his hat for a rabbit.

Possibly as an indirect result of the above, the SF magazines are struggling, according to the critics. Part of the reason, I'm sure, is the proliferation of paperback anthologies, but another part of the reason might be that SF is no longer presenting anything radically new and different. The subject matter is different, but the viewpoint is the same as that of the mainstream.

The conclusion from this line of reasoning is that SF is better off in the ghetto. The rest of the world is better off with SF in the ghetto as well. The ghetto won't attract as many readers, but those it does attract will be the ones with the energy and ability to solve problems. These people may need the radical ideas of a ghetto SF to stimulate their own thinking.

I shall be watching future issues of *GALAXY* with interest to see what sort of response is produced by your editorial.

Sincerely,  
Don Tarbet

445 Ridgewood Dr.  
Syracuse, NY 13206

*Me, too.*

Dear Mr. Baen:

I feel that I wuz had. I bought the April issue under false pretenses: I saw Zelazny's name on the cover and jumped to a conclu-

sion. I am ticked off to find that the only Zelazny in that issue is a short (albeit a good one.)

I will concede that the April issue is worth the buck. I am mollified, to say the least, to discover an Arsen Darnay serial. That, Geis, and Zelazny more than justify the expenditure.

Darnay is fantastic. He's been delivering on the promise and is ready for a lead role. I look for his name, even as a second feature. I could imagine him as the top SF writer of the 1980's. You might encourage him to confine his talents to novella-novel length. . . his short stories fail to flatter his talent.

Now, my other complaint: the reason I have not entered my subscription during the past ten years.

*If/Galaxy* costs \$1, right. Now, for \$2 I can get a Solzhenitsyn or a Tom Wolfe novel (600+ pages paperback.) For \$1.25 - \$1.50 I can get a reprint Heinlein I haven't read. . . or Georgette Heyer, Frank Yerby, A. Bertram Chandler, an Asimov anthology, ad infinitum. . . 200-350 pages of good reading.

In other words, you have competition for my reading dollar. I don't have to confine myself to SF mags—or even SF. I find Evangeline Walton fully as enjoyable, or a Simak collection, or maybe Pohl/Kornbluth's *Space Merchants*. . . or maybe historical fiction or a classic. And I can get any of these in paperback for a reasonable price. I might be inclined to skip F&SF (130 pages at 75¢) for Chandler's *Big Black Mark* (250 pages at \$1.25) I know I'll enjoy the whole book, but the magazine is liable to devote 30-50 percent to bland short stories.

Now, I'm not impossible to please. I was delighted with the chance to read Bester, Saberhagen, Poul Anderson, Pangborn, Clarke and Zelazny serials almost simultaneously, even if I had to buy 3 different mags. I bought the June *Fantastic* solely for the Moorcock Novella. But I do want you to know, however, that my cash and my free reading time are both finite.

Geis knows where it's at. He speketh

truth, forsooth. The main problem with the shorts cited below is their artistic pretension. I have yet to see a stream-of-consciousness short story worth bothering to decode (*Horse*). *Perfect* is a failed shaggy-dog story. *In-jokes* (*Singularity*) leave me out. Please restrain your artistic impulses. If I want status, I can leave a copy of *Gulag Archipelago* on the front seat when I pick up my college-student girl friend. What's more, in a pinch I can actually read *Archipelago* and enjoy it, and show the proper degree of condescension toward the Philistine. (Of course, I won't tell him it's fast, smooth, fun reading.) Dammit, you don't have to be unintelligible to be intellectual.

I would have preferred that you kill *Galaxy* and keep *If*, rather than the reverse. Poor me! I, not knowing that *If* was the corporate stepchild, enjoyed reading it more. I suppose *Galaxy* had the literary reputation to uphold? *If* could afford to drop her pants occasionally and have/be some fun.

You could help me feel happier with my investment in *Galaxy/If* if you would:

1) Get Pournelle off his duff and onto a sequel to *Spaceship for the King*. He owes it after the bind he left his protagonists in. You've been letting him off easy.

2) Get Lafferty to fill in more of the space you reserve for shorts. He's one of the very few I know who can satisfy me in the limited space. (Tak Hallus and Wolfe do well enough, true.) It takes at least as much skill to write an interesting short story as does a novella. It's a crime to entrust your short stories solely to novices. True, most people don't buy a magazine just for one short story, but, oddly enough, I for one manage to justify the expense of a mag if it has a Lafferty short.

3) Do what you have to, but get Anne McCaffrey's next *Dragonworld* novel. She has to have one, considering the loose ends she left in *Dragonquest*. (Ben Bova, attention! I'd buy the next three *Analogs* for such a serial, or Pournelle's. Little else would compel me to do so.)

None of the others, including *Analog*, grab me. For Bester, yes. I just can't expect value

from the backup material. Not even Dickson has strong enough pull to do much good.

On the other hand, I do like *Galaxy/If* most of the time, or else I would not be bothering to write. After all, *Galaxy* has been running some adequate side material. Geis is all there. Tak Hallus is interesting, and might be Lafferty's logical successor as THE short story master, one day. I would, however, like to feel more confident I'll get my money's worth from the whole magazine.

Oh, by the way, if Pournelle has done his serial to *Spaceship for the King*, or McCaffrey hers to *Dragonquest*, I apologize for my oversight. Perhaps they slipped past me like Zelazny's *Guns of Avalon*. Drat! I swore I'd not let that get by me, after *Nine Princes in Amber*. Yet it sneaked past in the night, nor would I have known about it had it not been for the preface to your *Sign of the Unicorn*. Thank you for that. As you see, I hate such loose ends as not-quite-complete novels. I would like to consider my *Galaxy* subscription as a sort of insurance against missing out on the climax of such goodies. Sure, I ask the impossible, but I've seen *Galaxy/If* deliver. I rather feel you won't let me down.

Confidently,  
Thomas C. Watson

2604 Dowling Ave.  
West Orange, Texas

*You're a hard man to please Mr. Watson—but I'll try!*

Dear Sir,

Regarding the comments on Velikovsky in your February, 1975 issue, it seems to me that nobody has yet mentioned the most obvious and basic objection to Velikovsky's *Worlds in collision*, and this is the simple fact that a comet can't become a planet.

A comet is an "airy nothing"; a planet is a solid body. You can't change one into the other.

Geoff. Muirden

Flat 8, 12 York Street,  
St. Kilda West,  
Victoria 3182,  
Australia

*Jerry's reply:*

*Actually, a number of people have dwelt at length on this. However, what Velikovsky means by "comet" isn't what most of us mean; he means only a large celestial object with a tail.*

*If Velikovsky could prove that the worldwide disasters he describes actually took place, then we'd need a theory to account for them; but since in my judgment he can't prove his disasters, I don't need to discuss his cosmology.*

*Incidentally, Stephen Jay Gould of Harvard geology dept. has done an article taking apart Velikovsky's geophysical data. It was in NATURAL HISTORY early this year, and answers several of the questions I raised in my article but which I didn't feel competent to discuss. In a private letter to me Dr. Gould compares Velikovsky with Daniken, but concludes they are quite different phenomena entirely. I tend to agree with his observation that Velikovsky deserves serious attention even though he is almost certainly wrong.*

Jerry Pournelle

Dear Editor:

Frederik Pohl's description of Mr. Fong's problem-combining process was of great interest. The solution seems to involve violation of traditional political-sociological methods of handling poverty; not to mention traditional standards of cleanliness (read sanitation). It sounds wonderful to me, but if it is economically feasible, a large number of poverty program bureaucrats and functionaries would eventually become political appointees in unnecessary positions. I suspect that they would make every attempt to maintain their present status.

I suspect that the ratio of alcohol to gasoline could be increased by appropriate engine adjustments; after all, some autos run on propane with no operational difficulties, except, of course, the ever-present problem of finding propane sources for refueling. While we are discussing distribution we need to consider two other problems; first, the reactions and actions of petroleum producers; and second, the regulations pertaining to the

production and sale of alcohol.

The inexperience and lack of financial capital which would be endemic among any new "fuel" farmers would also serve to hinder the basic program. Finally, and most important of all, would the general form of the program be of a sufficiently popular format, that a politician seeking to be re-elected could, without trepidation, support it fully. Politicians generally do not vote for programs which are unpopular with their constituents, even when they are absolutely necessary.

Changing to another subject, I recently saw a program which mentioned that, in salamanders and some higher animals (mice), stimulus by a negative electromotive force aids in re-growth of damaged tissue. I found myself wondering if, by any chance, that a positive E.M.F. might cause a repression of growth. Since cancer is a form of growth (uncontrolled), perhaps cancer researchers might profit from subjecting clones of cancerous tissues to various electrical potentials. Any cell receiving negative E.M.F. is receiving an excess of electrons, which I presume, might lead to overstimulation of synapses and thus to overproduction of chemicals needed for growth. Positive E.M.F. would drain electrons from the cell, causing a drop in the cell's metabolism. We might discover that certain chemicals which are carcinogens have the chemical behavior of electrolytes, changing the potential of a normal cell. Has anyone ever thought to test nicotine for its conductivity; I can't think of any reason that it would have been done before, but do we really have anything to lose? Researchers might test the electrical properties of cells from both healthy and cancerous patients and compare those properties with the amount of diseased tissue in the cancer patients.

Best wishes for Galaxy's continued success,  
Gary Paul Ristow

P. O. Box 962  
Willmar, Minn.  
56201

*Fred's article directed itself to feasibility, not politics—that's our job!*

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